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ABSTRACT

The contribution of recent curriculum research to an analysis of the ways in which the school curriculum could promote lifelong learning is discussed in this literature review and analysis. The introductory chapter points up the focus on articulation between school learning and out-of-school learning and notes the limitation of the study to curriculum approaches in industrialized countries so that results cannot be directly applied to other countries having different patterns of education. Further explanations are made of three curriculum functions relating to lifelong learning: introductory function (acquainting pupils with lifelong learning), orienting function (preparation for the world of work), and subsidiary function (examining curricula to find out how well they can enrich discussions of lifelong learning at school). Chapter 2 explains the concept of lifelong learning, clarifying differences between it and other concepts. Chapter 3 analyzes major trends in curriculum research and development including re-assessment of selected functions and aims of compulsory education, shifts in the selection of content, and a new emphasis on individual learning experiences. Chapter 4 evaluates the analysis from the point of view of horizontal and vertical dimensions of curriculum. Conclusions regarding curriculum analysis are drawn in Chapter 5, again in relationship to the three functions of the school curriculum. (FP)

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SCHOOL CURRICULUM IN THE CONTEXT OF LIFELONG LEARNING

Uwe Hameyer

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Unless otherwise indicated, all translations from German sources are my own.

U. HAMEYER

FOREWORD

The statement that under modern conditions individuals more than ever before need to be Lifelong Learners in order to survive, produces different reaction in an audience. It has always been a fact that human beings change, develop, mature, become wiser, as a consequence of living. Life is itself a learning process to a great extent outside the realm of human control. The value of such learning should not be underestimated, but this is not the type of learning meant by the modern idea of Lifelong Learning. To avoid such misunderstandings the qualification "systematic learning" is frequently added. In order to cope with the complex professional, personal and social problems encountered in the course of their lives adults need systematic learning which is more or less continuous. Reactions to this statement are often misguided, being based on a rather narrow interpretation of the term "systematic", where it is equated exclusively with learning situations organized for the users along the pattern of school or university courses. The idea of systematic Lifelong Learning does not deny that such formal arrangements may be necessary in some domains, or that their availability in others could greatly facilitate the adult learning process. The typical feature of systematic Lifelong Learning, however, is that the individual identifies his learning needs, finds out which learning sources are at his disposal and uses them in accordance with his objectives, his resources, and the nature of the learning sources themselves. The abilities, skills and attitudes required for such a dynamic approach to systematic Lifelong Learning are not automatically present and developed in the majority of the population. There is, therefore, a need to devote special attention to the development of the required potential in the school, since the school represents the period during which learning bases are laid down. Is this, however, a totally new school function? Does not school curriculum literature already contain frequent and more or less explicit references which justify and explain such functions and suggest ways by which this potential can be developed, possibly even indicating related practices and experiences?

The purpose of this study is to review and summarize "curriculum" literature which deals with articulation between school learning and the out-of-school learning which takes place during the lifetime of an individual. It also attempts an analysis of this literature.

The work has been conducted within the framework of the large number of studies planned by the UNESCO Division of Structures, Content, Methods and Techniques in Education on Curriculum in the Context of Lifelong Education and approved by the General Conference for the biennium 1977-78.

The Unesco Institute for Education was fortunate in having Dr. U. Hameyer to conduct the study. He was assigned to it by the Institute of Science Education, Kiel (F.R.G.). Dr. Hameyer has succeeded in the very difficult task of drawing clear categories from the abundant and diffuse literature on school curriculum, and for this work we express our appreciation.

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CHAPTER 1

INTRODUCTION

This study discusses the contribution of recent curriculum research to an analysis of the ways in which the school curriculum could promote lifelong learning. It centres on educational aims, contents and learning experiences as components of a curriculum for general education.

The curriculum research approaches that are investigated in this paper are concerned with continuity of learning through various age stages (vertical integration of learning). It illustrates not only the problem of how to facilitate the transition from one learning stage to another; the main emphasis of the continuity perspective is on basic aims and functions of education which extend beyond any particular learning stage. The point at issue is to discover what aims and contents activate the pupil to tackle life situations which require an ability to act creatively as well as the willingness and competence to continue learning throughout life.

Learning usually occurs in the context of varying individual and social experiences. The school is only one agency for learning among many. "Institutions of education such as schools, universities and training centres are important, but only as one of the agencies for lifelong education. They no longer enjoy the monopoly of educating the people and can no longer exist in isolation from other educative agencies in their society." (Dave, 1976, p.51). This implies the necessity of a better link between out-of-school experiences on the one side, and organized learning experiences on the other (horizontal integration. See Skager and Dave, 1977). According to Shimbori, school education is largely autocratic, inflexible, uniform, intellectual and abstract, "incapable of responding effectively to ever changing conditions and different individual and local needs, *separating it from real and actual life*" (Shimbori, 1975, p.37. My italics U.H.). Hence, Shimbori concludes, school education and out-of-school experiences should be more closely related to

each other. Pre-vocational education, for example, should also be reconsidered and education for inner satisfaction be promoted. Perhaps Shimbori somewhat overshoots the mark by levelling this fundamental criticism against *the* school in general. But if the quotation is interpreted as meaning that some schools are in danger of running into considerable difficulties on that score, then Shimbori's opinion may be useful for reconsidering the function of schools especially in the perspective of lifelong learning.

1.1 Three general aims

The present study investigates to what extent selected approaches in curriculum research and development may stimulate discussion on the value and revision of the school curriculum in the context of lifelong learning. The following questions summarize the purposes of the study:

1) Which major trends in recent curriculum research are suitable for reconsidering the school curriculum in the perspective of lifelong learning? (Chapter 3).

2) How far do the major trends described in Chapter 3 coincide with the aim of linking school learning more closely with future learning and the outside world? (Chapter 4, which is divided into two parts: the vertical and the horizontal dimension of learning).

3) What are the implications of such links for the debate on the introductory, the orienting and the subsidiary functions of the school curriculum in respect of lifelong learning? (Chapter 5).

These questions demonstrate the interest in a fundamental analysis of the connection between school and lifelong learning. More specialized aspects of the theme can therefore be dealt with only marginally in this study. (For more detailed information see, for example, Cropley, 1978).

1.2 Outline of the study

The study comprises five chapters. Chapter 2 sets out the concept. First it tries to clarify the differences between

lifelong learning and other related concepts (e.g. lifelong education). Next it specifies the premises on which the relationship of school curricula with lifelong learning has been studied.

In Chapter 3, major trends in curriculum research and development are analyzed: re-assessment of selected functions and aims of compulsory education; shifts in the selection of contents; a new emphasis on individual learning experiences. Within these areas, approaches have been selected which fulfil at least one of the following criteria:

1) emphasis on the notion of vertical or horizontal integration;
2) presentation of a relatively new aspect of the concept of lifelong learning;
3) theoretical justification of existing main ideas of lifelong learning.

Chapter 4 evaluates the preceding analysis from the point of view of the horizontal and vertical dimensions of the curriculum. On this basis certain conclusions regarding curriculum analysis can be drawn (Chapter 5).

1.3 Context and scope of the analysis

The limitations of this study are obvious. The selected curriculum approaches are usually derived from the condition prevailing in industrialized countries. Hence the results of this study cannot be directly applied to countries having quite different, often less formalized patterns of education and with greater problems of illiteracy. But even within the above-mentioned industrialized countries the results of this study have to be adapted to the particular features of each educational system.

In addition, the present study cannot claim to be a true reflection of what actually happens at school. A remark by Achtenhagen (1978) on conomics teaching in the Federal Republic of Germany may illustrate that even an intimate knowledge of available learning alternatives and theories is not enough to eliminate the risk of implementation problems whicht are, of course, also of concern to curriculum designers. Although in the Federal Republic of Germany a number of textbooks for the study of economics at school have been in use for a long time

and have achieved very high sales (one book reached its 169th edition in 1974), "many teachers work out their own teaching material in addition to or in competition with the textbooks" (Achtenhagen, 1978, p.563).

1.4 School curriculum and lifelong learning

The relationship between school curriculum and lifelong learning must be defined. For this purpose, the present study identifies in the school curriculum three functions relating to lifelong learning. These functions may be considered as desirable trends for the future, in that they serve to clarify the relevance of the school curriculum to the future life of the pupil. Furthermore, they suggest a close link between life in and out of school.

1.4.1 *Introductory function*

In order to acquaint a pupil with lifelong learning, the school curriculum should provide alternative learning experiences which will allow him to familiarize himself with the idea and the potential benefit of lifelong learning, as a means of meeting both his individual needs and those of the society. For example, such experiences should occur in formal school subjects, or in integrated courses covering two or more subjects, where the goals and possibilities of lifelong learning could be discussed. Interest would be aroused and an understanding of the practical importance of this idea for everybody's life would be promoted. Provision of suitable information and stimulating learning aids will be important for this introductory function. It would, however, be a misinterpretation of the introductory function if it were understood to have its logical place only at the beginning of a lesson in order to be merely a motivation factor. This assumption would obscure the need for relatively long-term sensitization if the full scope of lifelong learning is to be grasped.

1.4.2 *Orienting function*

The function of the school curriculum must not be restricted to creating an awareness of the need for lifelong learning. The curriculum also has the difficult task of providing information on contemporary living conditions and future situations or on the necessity of continuing education, for instance in the fields of work and daily life. Ways of supplying

such information could be indicated. The individual teaching subjects will have to work out their own specific contributions.

The orienting function concerns preparation for the world of work. The pupil should be confronted with the problem of possible future changes of occupation and be familiarized with the specific demands made by each occupation on his willingness to continue educating himself. Information must be given on employment possibilities. The pupil should get to know the specific characteristics of various occupations. Some examples would be: flexibility; required length of time to be spent in different employments; formal further education; the links between a particular industry, the general economic and social climate and the characteristics of specific places of work.

In addition the orientating function requires that information be given on the relevance of school learning to the present and the future. This applies to private, cultural and public areas of life. The curriculum should, therefore, offer information and learning opportunities with the help of which the learner can orient himself with regard to his foreseeable learning needs and the shaping of his future. It will be necessary to reconsider the conventional contents of learning and general educational objectives in terms of this function.

1.4.3 *Subsidiary function*

The third function of the school curriculum concerns its *indirect* contribution to the pupil's preparation for lifelong learning. Current teaching no doubt contains elements which are consistent with lifelong learning without having been specially designed for that purpose. This is true in particular of a number of curricula which promote life-related learning and the idea of open teaching.

Thus the subsidiary function does not presuppose that modernization of the school curriculum will necessarily, or can only, be achieved by the direct application of the results of research on lifelong learning. If that were the case, the research results would first have to be elaborated and approved in discussions with educational researchers, with teachers and curriculum designers, with school administrators and the public. In contrast to the two previously mentioned functions, the working procedure is reversed: existing or proposed curricula are examined to find out how far they are capable of enriching the discussions of lifelong learning at school.

For example, any available free periods could be devoted to learning activities which will promote self-directed learning, generally achnowledged to be a significant factor in lifelong learning, or to projects in which the basic values of autonomy, responsibility and dialogue can be encouraged and developed. The curriculum can fulfil these subsidiary functions, for example by introducing real-life situations or events in the community (planning a youth centre, day-care centres for children, a political dispute about the transformation of a main shopping street into a pedestrian zone, establishing an industrial enterprise in a rural environment, etc.). The curriculum cannot anticipate such situations but can only offer suggestions of how situations of this kind can be used for educational purposes. What is needed in this context is a better utilization of the wealth of ideas offered by the schools and by curriculum development.

Chapter 5 returns to these three functions of the school curriculum and elaborates them with the aid of certain trends in curriculum research described in Chapter 3. It will be found that these functions do not necessarily represent new pedagogical ideas. Some readers may say that they have long realized in their teaching the basic thought underlying these functions. Others may come to the conclusion that working conditions in contemporary schools make these functions appear largely illusory. There may be still other reactions. It is, therefore, necessary to illustrate the expected advantages of the delineated functions.

Obviously, the above-mentioned functions of the school curriculum do not completely replace existing functions. It would be a misunderstanding to interpret them as a plea for a curriculum designed exclusively for lifelong learning. This would merely result in a refusal by subject specialists to participate in such innovative practices. The three curriculum functions will, however, fulfil their purpose if they are seen as an aid to reconsidering the aims of the various subjects, in curriculum development and, above all, in teaching.

Moreover, the functions could be means to keep on reflecting critically the danger that the school might be isolated from its cultural and social environment. For this, the lifelong learning concept offers helpful starting points. These are discussed in Chapter 3 and 4 of this study from the viewpoint of curriculum research. Furthermore the three functions may create ideas for future curriculum development and innovation.

Supposing a group of subject specialists is drafting new teaching units for science instruction. They will inevitably face the question of the educational purpose of these science lessons if they are not simply to be a scaled-down version of biology and physics as taught at university. The three above-mentioned functions of a school curriculum related to lifelong learning might enable this group to consider science teaching from a supra-disciplinary point of view. This consideration is discussed in Chapter 4. The teachers could, for example, evaluate findings on out-of-school needs for continued learning, and they could try to design a form of science teaching which would contribute to the ability to cope with such needs for lifelong learning. Of course, it should be mentioned in this context that the lifelong learning perspective is only one among others.

These three functions may not encompass the entire scope of the school curriculum in relation to lifelong learning. But there is some evidence that they indicate the directions in which to search for future foci of curriculum development and curriculum renewal. However, one cannot consider change in contents without addressing the problems of curriculum innovation, because in the field of public curriculum ends and means condition each other. The present study, nevertheless, is essentially concerned with contents and concedes that it can only touch on the question of innovation.

CHAPTER 2

NOTES ON THE KEY TERMS

What should be the characteristics of a compulsory school curriculum *in the context of* lifelong learning? To answer this question, the two key terms school curriculum and lifelong learning must be clarified (see sections 2.1 and 2.2 of this chapter). The exact meaning of the words "in the context of" must also be explained. On 26 November, 1976, the 19th UNESCO General Conference passed a recommendation on the development of continued or further education (documented in a publication of the Deutsche Unesco-Kommission, 1977), which says: "Education is inseparable from democracy, the abolition of privilege and the promotion within society as a whole of the ideas of *autonomy, responsibility and dialogue*" (my italics U.H.). Special emphasis is laid on access to education within the framework of lifelong learning. These principles indicate an important aspect of the role the school curriculum can play in the context of lifelong learning: it should provide learning possibilities suitable for developing these three basic values.

The following extract may help to illustrate the way in which the linking of school curriculum and lifelong learning is seen:

> "The education of young people should be oriented progressively towards lifelong education and learning, taking into account the experience gained in regard to adult education, with a view to preparing young people, whatever their social origins, to take part in adult education or to contribute to providing it.
>
> To this end, measures should be taken with a view to:
>
> a) making access to all levels of education and training more widely available;
>
> b) removing the barriers between disciplines and also between types and levels of education;

c) modifying school- and training-syllabuses with the aim of maintaining and stimulating intellectual curiosity, and also placing greater emphasis, alongside the acquisition of knowledge, on the development of self-teaching patterns of behaviour, a critical outlook, a reflective attitude and creative abilities;

rendering school institutions of higher education and training establishments increasingly open to their economic and social environment and linking education and work more firmly together;

e) informing young people at school and young people leaving full-time education or initial training of the opportunities offered by adult education;

f) bringing together, where desirable, adults and adolescents in the same training programme;

g) associating youth movements with adult education ventures." (Deutsche Unesco-Kommission, 1977, p.22f).

These essentials convey different possibilities of educational renewal in the longitudinal dimension. For the purposes of this study the most interesting aspect is the way in which the vertical and horizontal dimensions of learning are combined within a general frame of reference (for example linking education and work, or bringing together adults and adolescents as well as removing the barriers between the various stages of education). Further education and school learning are equally important parts of a coordinated, differentiated educational system consistent with the principles of lifelong learning. Chapters 3 and 4 will show that this part of the UNESCO recommendations has been confirmed by results of educational research. This convergence could not necessarily have been expected since the recommendations represent an international consensus which is not based solely on research results but derives also from other sources of argumentation and experience.

2.1. Lifelong learning

Since approximately 1973, international organizations (UNESCO, OECD, ILO, European Council for Cultural Cooperation) have been foremost in studying the basic problems of lifelong learning, either by sponsoring research projects or by carrying them out themselves. A comparative survey of the recommenda-

tions resulting from these activities is given by Voss (1978). One of the reasons why the above-named institutions did their own, or sponsored, research in this particular area may be that at the time the social sciences were not yet able to provide a sufficient volume of research results on lifelong learning.

In the years since 1973 work in this field has centered on the theoretical foundations and goals of lifelong learning and has resulted in varying definitions and designs for future activity.

2.1.1 *The need for a comprehensive perspective*

One motive for these activities was the recognition that the school is facing a change in one of its traditional functions:

> "In the past, the aim of general secondary education was to give pupils a sufficient cultural grounding in literature and science, first of all to develop the character of the pupil, and secondly to give him the knowledge he requires to go to University; but today this is no longer its sole aim." (UNESCO, 1978a, p.13. For greater detail see Chapter 3, section 3.1).

Another motive is described by Shimbori (1975). He points out that *imbalance of knowledge* is a major contemporary problem:

> "Although the post-industrial society is characterized by the abundance of knowledge, all types of knowledge are not equally plentiful. While short-lived knowledge is abundant, knowledge which withstands the test of time is not. While technical superficial knowledge is abundant, knowledge that answer's man's deepest needs is not. Since the creation of knowledge is monopolized by a few, there is much one-way instead of two-way communication. While knowledge of remote places is abundant, that of one's own community is not. These sorts of imbalances of knowledge result in mutual distrust and frustration among peoples and groups. There is much fragmented, but little consistent knowledge, so that people cannot choose and judge knowledge adequately." (Shimbori, 1975, p.41).

The Faure Report (Faure et al., 1973) indicates further reasons that have led to the promotion of the idea of lifelong

learning: the "fight against ignorance" (p.XIX), above all in Third World countries; the maxim of helping the largest possible number of learners to gain access to the highest possible level of knowledge, and of enabling them to participate increasingly in responsibilities and decisions (p.XXV).

2.1.2 *General principles and aims of lifelong learning*

The terms lifelong learning, lifelong education and recurrent education are sometimes used interchangeably with disregard to their different meanings. For instance, while the CERI model proposing a periodic alternation between education and work coincides in some of its basic features with the goals of lifelong learning, it does not have the same scope:

> "The concept of 'recurring education' intends to propose a concrete framework within which a great part of the individual's lifelong learning can take place. It differs from the concept of 'permanent education' by making the principles of alternation between education and other activities central to the definition." (CERI, 1973, p.12).

This standpoint implies that learning experiences outside the educational system assume greater significance in the process of lifelong learning. On this point different models based on the above-mentioned basic features largely resemble each other. The individual should be given the opportunity to take stock of his experiences and fit them into wider contexts. In these models lifelong learning receives particular emphasis (self-confidence and fulfilment of fundamental needs; see Kidd, 1975), especially in the context of self-directed learning.

The *recurrent education* model is more limited in time than is the lifelong learning model. As understood by CERI, the periodic alternation between education and other activities covers the period following compulsory schooling or basic training (in contrast to the view of Gestrelius, 1977, who wants to include compulsory schooling). This temporal demarcation is expressed very clearly in the statement that alternation of school and non-school activities directly concerns the total sector of post-compulsory or post-basic education (CERI, 1973, p.12). *Lifelong learning*, on the other hand, encompasses not only that sector but all forms of and needs for learning both within and outside educational systems. Lifelong learning covers the entire lifespan. Another difference between life-

long learning and recurrent education is that the model of periodical alternation between education and work underlines the relationship of learning to economic, social and labour market policy, whereas the lifelong learning concept stresses the multiplicity and diversity of relationships of learning to life, the society and the individual. Its aims are to equip the learner

"a) to continue to extend his personal potential throughout his life without infringing his neighbour's right to do the same;

b) to serve the economic well-being and progress of his people and the health of his ecosystem without damaging those of others;

c) to live, learn and share in the development of human associations that we call communities, whilst acknowledging the rights of others to form perhaps very different human associations, to which he must seek to relate." (Lynch, 1977, p.5).

Another important aspect emerging very clearly from Lynch's summary of the aims of lifelong learning is that learning should always be or lead to *responsible action respecting the rights and promoting the well-being of others. It should be socially committed.* This requires a thorough understanding of the environment and readiness for cooperative action. According to an OECD Working Group, one of the specific values of education at all levels is that it contributes to self-knowledge and self-identification, to an understanding of the environment and to agreement and cooperation with others.

Bogdan (1975) even goes beyond this. In his view the principal task of lifelong learning is "to hasten the advent of the social and historical moment when creation *will become an inner necessity for all men.* By creation I mean the ability to fulfill in a free manner all given (natural) potentialities and the (spiritual) power to exceed these limited self-realizations: creativity, either individual or social, is the dialectic ability to surpass oneself" (Bogdan, 1975, p.32). Bogdan points out that in the present situation only a few are privileged to do creative work. What is needed is that all men should have the opportunities and resources enabling them to become creative, to surpass themselves spiritually "in higher social or cultural accomplishment" and thus participate in this "essential progression of human fulfilment". (ibid., p.33).

Like Bogdan, UNESCO describes the contradiction in industrialized societies. There is little point in painting an ideal picture of the development potential of society if the pupil is not simultaneously prepared for coping with these contradictions. He must learn to deploy his own resources and potential in cooperation with others if he is to participate in overcoming such contradictions on the basis of common social and ethical principles.

2.1.3 *Differentiating the concept*

The aspects under which lifelong learning can be put into more concrete terms are set out in a study by Skager and Dave entitled "Curriculum Evaluation for Lifelong Education", sponsored by the Unesco Institute for Education, Hamburg. This study distinguishes between five "overall categories or clusters of evaluative criteria general enough to be applicable to all curriculum components" (Skager and Dave, 1977, pp. 36ff). These categories are *horizontal integration, vertical integration, orientation of self-growth, self-directed learning* and *democratization*.

Horizontal integration means cooperation in the field of education between the school, the community, the world of work, cultural institutions and mass media. Vertical integration means articulation of curriculum components at various levels of schooling as well as articulation of school curricula with pre-school education and post-school learning. Orientation of self-growth means developing individual personality characteristics "that contribute to a long-term process of growth and development including realistic self-awareness, interest in the world and in other people, the desire to achieve, internalized criteria for making evaluation and judgements, and overall integration of the personality" (ibid., p.131). Self-directed learning signifies "individualization of the learning experience toward the goal of developing the learner's own skills and competencies in the planning, execution and evaluation of learning activities both as an individual and as a member of a cooperative learning group" (ibid., p.133). Democratization is associated with equality of learning opportunities and possibilities of participation in decision-making processes at school, with encouragement of creative behaviour, divergent thinking and development of curiosity.

If such learning objectives to be prepared for at school are formulated, it must also be known for which out-of-school

areas of life they will be useful. Flechsig has made a relevant proposal, distinguishing between contexts of social action and contexts of communication, as follows:

"Contexts of social action:

1. Work
2. Education (of others)
3. Self-government and participation
4. Satisfaction of individual needs (food, living conditions, physical and mental fitness)
5. Entertainment.

Contexts of communication

6. Mass media
7. Institutions for normative orientation (political parties, churches, business organizations)
8. Private and semi-public communication (parties, dialogue, 'gossip')."

(Flechsig, 1975, p.16. See also Figure 1).

These categories certainly need to be supplemented. But they give an idea of the efforts required to open the discipline-oriented school curriculum to broader educational tasks.

Knowles consequently demands the development of competencies for life roles and suggests the following taxonomy:

Roles	Competencies
Learner	Reading, writing, computing, perceiving, conceptualizing, evaluating, imagining, inquiring
Being a self (with unique self-identity)	Self-analyzing, sensing, goal-building, objectivizing, value-clarifying, expressing, spiritualizing
Friend	Loving, empathizing, listening, collaborating, sharing, helping, giving feedback, supporting
Citizen	Caring, participating, leading, decision-making, acting, "conscientizing", discussing, having perspective (historical and cultural)

LIFE CONTEXTS AND ASPECTS OF SCHOOLING

Aspects of schooling / Contexts of adult life	Educational objectives	Instructional method and school organisation	Instructional socialisation
1. Work	agriculture, industry administration, etc. as curriculum content	project method; integration of general and vocational education	"visible" cooperation of teachers (team teaching)
2. Education	education as curriculum content; ability to "teach" others	discussion of instructional objectives and methods between teachers, pupils, and parents	parents as school assistants
3. Self-government and participation	ability to perceive and express own interests and those of others in public bodies	curricular decision-making experienced as a public activity	"visible" participation of parents in school affairs
4. Individual need satisfaction	housing, food, health, sex as curriculum content; ways of quality control in purchasing characteristics	excursions, field study in deprived areas; adapting instructions to personality	expression of needs not suppressed but enhanced; purchasing decisions in school open to public
5. Entertainment	learning to take a role in play situations; development of games to prepare for practical work	strategic games, role-playing, simulation used as teaching	attitude that games are not opposed to serious learning
6. Mass media	knowledge of function, technology and ideological background of various media	mass media as instructional aids	experience in handling mass media; participation in media selection strategies
7. Institutions for normative orientation	knowledge of institutional values and properties according to their self-interpretations	representatives of the institutions available as communication partners	"visibility" of the influences of these institutions on curricula and school life
8. Private and semi-public communication	sensitivity for verbal and non-verbal expressions and ability to communicate verbally and non-verbally	space, time, and opportunity for internal communication	taking pupils' gossip as seriously as adults'

Family member	Maintaining health, planning, managing, helping, sharing, buying, saving, loving, taking responsibility
Worker	Career planning, having technical skills, using supervision, supervising, getting along with people, cooperating, planning, delegating, managing
Leisure-time user	Knowing resources, appreciating the arts and humanities, performing, playing, relaxing, reflecting, planning, risking
Planner	Dreaming, need-assessing, priority ordering, strategising, evaluating, scheduling, acting, persevering."

(Knowles, 1975, pp.11ff.).

Attempts of the above kind enrich discussion of curriculum revision. They stimulate a search for new dimensions of curriculum objectives and contents from a viewpoint other than that of conventional school subjects. However, such role analyses lend themselves to a variety of applications. Erroneous interpretations are possible as long as the educational principles under which these roles are to be defined are not stated.

Some of the evidence outlined by Flechsig and Knowles is discussed in Chapter 3. Although other approaches are mentioned there, the basic thrust is analogous to this type of analysis, namely not to restrict the school curriculum to academic learning. Relevant key aspects have already been mentioned: enrichment of school learning by involving the whole gamut of potential experiences in and out of school (horizontal integration), and education with a view to future life areas and situations (vertical integration).

This study includes informal learning and learning experiences within the family, the peer group, or an association. In this sense learning encompasses not only the learning processes occurring in formal educational settings (lifelong education), but is conceived as "purposive learning organized in different contexts for the ultimate aim of improving the quality of life" (Flechsig, 1975, p.17).

Essentially the school curriculum is a basis for organized learning (lifelong *education*). Nevertheless this study focusses

on lifelong *learning* because its purpose is to reconsider the school curriculum only as one element of the entire permanent learning process.

One main feature of lifelong learning is that of continually improving one's own competencies and accomplishing new ones in order to maintain and improve the quality of life (see Dave, 1973, p.22). This means that schools would have the responsibility for

a) fostering development of the personal prerequisites for lifelong learning (competencies, attitudes, values, motives) and preparing the pupils for mastering the major problems in different contexts of life and relearning;

b) fostering recognition of the importance of learning in non-school settings;

c) establishing the structural and organizational conditions which enhance the chances for lifelong learning.

In keeping with the notion of vertical articulation already discussed, lifelong learning is mainly concerned with the question of how, under what conditions, earlier learning experiences can be utilized in the educational process. This aspect is of special importance because the school curriculum is implanted onto the complex notion of the world which the children have built up in their pre-school years, and onto the ideas and expectations which they have of their future. For most children, school is the first stage of systematically organized learning. This is of considerable significance for the manner in which the school curriculum should connect with pre-school experiences and with post-school learning.

2.2 School curriculum

The necessity of investigating the functions of school curricula for lifelong learning is shown by Skager and Dave:

> "If lifelong education is to be made a reality in the near future, the curriculum of schools cannot be neglected. This need to reform school curricula can scarcely be exaggerated, for in most societies it is in school that children are or can be equipped with the means of continuing their education after

> they have left school. If the school fails so to equip them their chances of successfully continuing their education thereafter are correspondingly reduced. Schools can become the spring-board for implementing lifelong education." (Skager and Dave, 1977, pp.10 ff).

However, one should not overestimate the benefit of education for the time after leaving school. We know relatively little about the persistence of knowledge acquired at school. Until now, only a few authors (Fensham, n.d.; Hyman, Wright and Reed, 1975) have dealt with the problem of how much profit an adult derives from what he has learnt at school (except for the three R's). A model for empirical analysis of the long-term effects of science teaching is now being worked out (Häussler et al., 1977).

The uncertainties concerning the effectiveness of school learning over time suggest that expectations should not be too high. Nevertheless the school should not be discouraged from adopting the perspective of lifelong learning. The following assumptions support this view:

a) lifelong learning is not yet a significant determinant of the school curriculum;

b) possibilities do, however, exist, or could be created, to reform the school curriculum in this direction or to expand the already existing attempts to do so (see Chapter 5);

c) written curricula and teaching practice are not necessarily identical (see the discussion about the hidden curriculum in Snyder, 1971). All the same, the curriculum has a certain impact on actual learning (just as, vice versa, evaluation of learning may be useful for curriculum revision).

2.2.1 *A comprehensive understanding of curriculum*

What then is the nature of a school curriculum? Spears (1950) says that "a curriculum is something to be felt rather than something to be seen. The transplant of the structural aspects of a promising (elsewhere) program tends to overlook the fact that the true blueprint is in the minds and hearts of the teachers" (quoted in Oliver, 1968, p.3). This view implies that a written curriculum cannot represent the reality of

teaching, and that the teachers' own guidelines do not necessarily converge with the written curriculum. If then the teacher has some freedom of operation, he may decide to deviate from the written aims or principles. A curriculum has to gain the acceptance not only of the School Board but also of the individual teachers.

The role of the curriculum vis-à-vis syllabuses and lesson outlines plays an important part in how such questions are decided. Does it occupy a mediating or complementary, or rather an autonomous position between these two elements? Does it form a bridge between official standpoints and teaching practice, or does it rather act as a driving force for new developments? "The modern conception of curriculum unites the preparation of the syllabus and the creation of instructional materials into a single integrated process of development" (Lewy, 1976, p.3). This statement would seem to express an objective rather than describe reality.

a) Curricula consist of *documents* and other teaching-learning aids. They describe the educational philosophy under which intended learning in school should, or can, take place (for instance in the sense of Beauchamp, 1968). In any curriculum worthy of the name educational objectives should be justified in the context of basic educational principles and made "accessible to critical scrutiny" (Stenhouse, 1975, p.5). Their selection must be understandable, warrantable and legitimated (on these demands see Künzli's (1975) educational approach to curriculum and Peters's (1975) fundamental thoughts on the subject). On the other hand, it is not always possible to specify learning *results* in advance (see Frey, 1971, p.51). However, the teacher must know what types of learning result are expected so that he can plan and evaluate his teaching accordingly (see Goodlad and Richter, 1966). In any event, schools should so define their curriculum that education is seen in a longitudinal perspective.

b) Furthermore, a curriculum should contain suggestions for the setting up of learning situations, such as the organization of experiments or projects, teaching methods, or work under heterogeneous conditions of learning. If this criterion is taken seriously, simple lists of subjects or

time-tables cannot be considered to be a curriculum.

c) It seems reasonable to use the term curriculum only when it describes the objectives of learning within the institutional and legal framework of school and when it supplements this description with information on contents or issues for educational activities and learning situations.

These three components are essential parts of any curriculum. This statement has not been arrived at arbitrarily. Results of educational research have shown that a mere enumeration of general learning objectives is insufficient. There must also be adequate information and a guide to interpretation which will enable the teacher to understand fully the meaning and purpose of these objectives. Unless it has been made quite clear why these new objectives have been adopted, on what ideas of the basic functions of the school they are based, and what means of realizing them their author envisaged or excluded, it may happen that conventional teaching is continued behind a facade of new objectives.

Objectives, contents and learning situations are necessarily the only components of a curriculum. As Frey(1971, p.13) points out, there may be others:

> "Central themes dealt with under the concept of curriculum are educational objectives, contents and the organization of learning. Also included are the problems of designing and implementing an educational programme. Such programmes may be called courses of study, syllabuses, 'programmes scolaires', teaching aid systems or educational plans. All these various versions of teaching programmes are subsumed under the term 'curriculum'." (Similar definitions are given by Lewy (1976) and Richmond, (1971)).

Oliver examines several definitions of the term "curriculum" and uncovers one further aspect which is of particular interest to this study. The most comprehensive concept, he writes, encompasses "all the experiences the child has regardless of when or how they take place" (Oliver, 1968, p.5). Experiences out of school and the knowledge which the child has acquired through them are, in a sense, ingredients of a curriculum. Similarly, Caswell and Campbell (1935, p.66) already regarded

the curriculum as being "composed of all the experiences children have under the guidance of teachers" (quoted from Tanner and Tanner, 1975, p.18; see also Tyler, 1971 (1949), who speaks of planned learning experiences including extra class activities and learning at home in so far as they are directed by the school). This aspect is significant because it locates the school curriculum in the context of out-of-school learning and post-school life, thus opening up a perspective of lifelong learning. However, it must be borne in mind that out-of-school spontaneity cannot be compressed into a plan, nor should any attempt be made to do so. After all, a school curriculum concerns school activities. It can try to prepare the children in some measure for their future lives, to open itself to the outside world, but it must not attempt to direct or determine life itself.

Curricula also differ in the institutional and temporal range they cover (Reisse, 1975, p.49). As regards the institutional dimension, a curriculum may be designed for a grammar school *or* for a comprehensive school *or* for vocational training. In the temporal dimension, curricula may range from planning profiles for a few lessons to an overall concept covering several school years.

In terms of prognosis, a curriculum is concerned with development processes extending from the present to the future, or with the applicability of learning to the future life of the pupils (see Frey, 1971, and Chapter 4, 4.1.3).

Taking all this into account, a curriculum may be defined as follows:

> A curriculum is a plan which delineates intended or supposed learning processes and their underlying educational philosophy. The plan consists of components such as aims, contents or topics and learning experiences (activities or intended learning opportunities) which are consistent with the intended educational principles. The educational principles should be well justified and explicated, so that other people can trace back the foundations of the curriculum.

A more comprehensive definition which would include the processes of developing and implementing a curriculum will not be attempted in this study because the said processes are outside its scope. In this respect the working definition given

above represents merely a section of the whole spectrum of curriculum study.

It should, however, be remembered that a curriculum as a plan is influenced by diverse factors. The nature of a curriculum may have been decided upon *before* measures for its implementation are designed. But its final form results from the objectives bound up with curriculum development, and from concessions curriculum developers will have to make in the course of the processes of testing and dissemination. If innovative curricula are to be accepted and implemented in the area for which they are intended, certain institutional preconditions and institutional support are indispensable. These aspects will be briefly dealt with in Chapter 5. The following section mentions some of the factors affecting the process of curriculum development.

2.2.2 *The curriculum among other influences*

The influence of a curriculum varies not only with changes in educational policy or in school systems, but also with increasing competition between programmes of study, examination standards, textbooks, and teachers' qualifications. In England, for example, the curriculum plays a decisive role in the planning of instruction; at the same time, to quote Beauchamp and Beauchamp (1972, p.35), it should not be overlooked that "the notions, or conceptions, of what constitutes a good curriculum held by headmasters and teachers is another powerful influence upon curriculum in England's schools". In the United States considerable importance attaches to the textbooks. The same applies to the Federal Republic of Germany. State institutions decide on the admissibility of textbooks (see Müller, 1978) and draw up lists of recommended ones. Another reason for the strong position of textbooks in West Germany is that in the individual Federal States they are usually explicitly specified in the official syllabus.

The decisive influence of syllabuses or directives is thus obvious. In the Federal Republic of Germany and in Scandinavian countries, syllabuses not only lay down the minimum of learning to be mastered in a given year. They also define examination contents. In England the examination syllabuses established by the examination boards, as well as those of the schools themselves, exert some influence on curriculum decisions. Teachers and headmasters in England have wider discretionary powers of planning and designing the curriculum than teachers in other

educational systems. The inspection system is another factor influencing educational planning. Finally, there have been a number of public campaigns in the Federal Republic of Germany which show the powerful impact that parents' associations as well as politicians can have on curriculum development. An analysis of the interplay between such factors in the curriculum process is to be found in Lauterbach (1977).

A comprehensive look at all these factors is necessary in order to set priorities for curriculum renewal. The aspects discussed in Chapter 3 are, therefore, of a general nature although the school curriculum remains the starting point.

CHAPTER 3

SOME MAJOR TRENDS IN CURRICULUM RESEARCH AND DEVELOPMENT

This chapter analyses curriculum research and development supportive of lifelong learning on the basis of the questions raised at the beginning of Chapter 1: Which approaches seem to promote the renewal of a school curriculum in the context of lifelong learning?

Several features of curriculum research relate indirectly to lifelong learning, notably:

1) analysis of life-situations to identify appropriate learning objectives (Bobbitt, 1918); Robinsohn, 1971; Hemmer and Zimmer, 1975);
2) learning by discovery to develop problem-solving competencies (Bruner, 1960);
3) curriculum integration to improve coordination on the horizontal dimension of learning (Häussler, 1974; Tamamushi, 1978; Ingram, 1979).

The concept of lifelong learning was, however, essentially developed outside curriculum research. It is therefore necessary to build a bridge between curriculum problems and lifelong learning. The notions of vertical and horizontal integration are useful connecting elements because they transcend school education. The longitudinal view (vertical dimension) demands increased consideration of the pupil's future, and the cross-connections between school and out-of-school life (horizontal dimension) imply a form of learning which links institutional learning processes with out-of-school learning experiences.

Hence the major trends in curriculum research and development to be examined in this study have been sought along these two dimensions. Obviously, these trends do not represent the whole spectrum of research and development, as a look at manuals for curriculum development shows (Frey et al., 1975; Rubin, 1977;

Tanner and Tanner, 1975). The trends which have been selected

a) focus on new educational aims;

b) take a new look at school subjects; the notion of horizontal integration in particular calls for a thorough reconsideration of the subject matter taught in schools;

c) confirm some essentials of lifelong learning.

Other criteria for the selection of the trends are derived from the curriculum definition given in Chapter 2, which names three indispensable components of a curriculum:

a) functions and aims;

b) the rationale and justification for learning contents;

c) the organization of learning experiences.

These three components constitute the first type of curriculum, the written or otherwise codified curriculum. The second type of curriculum includes the whole process of its development, from its inception through the innovation phases and all aspects of its implementation.

The two research areas intermingle in many ways. It has already been explained why the present study concentrates on the first type of school curriculum, i.e. on the objectives and contents of school education in the context of lifelong learning. There is no intention to propose an innovation strategy. The focus is on conceptual problems, on the Why and What to teach. Questions concerning the component "educational aims" are discussed in section 3.1 of this chapter under the headings *Self-actualization* (3.1.1), *Competencies for action* (3.1.2), and *Integrating real-life problems* (3.1.3).

3.1 Reassessing selected functions and aims of school education

The functions of the school reflect the roles of the school arising from its position in a certain socio-cultural environment as well as its institutional nature. This has an effect on the school curriculum because the notion of school derived from such anthropological principles has an impact on the selection of contents and of objectives.

The basic question of what to learn for which purpose cannot really be answered until it is clear why the school should, and can, be the appropriate "agency" for the chosen aims. Educational aims which are not merely occasional wishes have not generated themselves, nor are they established for their own sakes. They are based on a theory or, as a rule, on assumptions about the functions and tasks of the school as an educational institution set up by the state.

If new educational aims are introduced, their essential features must be generally acceptable. Their urgency and the intention behind them must be seen in the context of the general view on what the school should be. They must be consonant with the defined tasks of the school or be interpretable as an extension of these tasks. If this is not the case, the tasks themselves must be critically reviewed and redefined. Many conflicts about aims seem, in the last analysis, to be conflicts about the basic definition of school functions. The debates on de-schooling or sex instruction at school (see Flitner, 1977) are relevant examples. Conversely, an economically or socially motivated change of functions initiated outside the school may make people aware of new educational aims and requirements (e.g. the introduction of a ninth or tenth year of compulsory schooling, currently accelerated in order to diminish the rate of youth unemployment and the shortage of training places). In every case, the functions of the school and the definition or revision of educational aims are intertwined.

The necessity of seeing educational aims in the context of a given concept of school is obvious and will not be dealt with separately in this study. However, where the relationship of school functions and educational aims is discussed, this aspect cannot be ignored. It includes the question of the tasks of the school, whether explicitly formulated or arrived at by interpretation, the school's efficiency in mediating new educational aims, and the extent of its influence on an individual's learning activities.

The impact of these considerations on the reassessment of education has a parallel in the fact that most innovations are bound up with a prior understanding of the school and its curriculum. This aspect, expressed in another way, implies some criticism of prevailing teaching practice. Let us assume that new aims such as the following are proposed:

a) to assess the constructive value of one's own mistakes and to adjust one's actions accordingly;

b) to recognize, when dealing with a problem, what further learning is required to solve the problem competently (to assess the growth potential and the limits of one's own problem solving capacity);

c) to reconsider and justify one's judgement of people or situations from various aspects (multiperspective judgement);

d) to apply one's own interpretation of the saying: "He who does not ask silly questions will never become wise".

To revert to the functions of the school. Their nature is reflected in the following questions: Why do children learn Latin? Why is integral calculus taught? What is the purpose of studying individual countries in geography or of an introduction to periodicity in chemistry? School curricula which justify a particular discipline on the strength of its assumed educational objectives are based on a specific notion of the school's tasks and the educability of man.

Such notions are often not transparent. Nevertheless they govern decisions on educational aims and contents. In most cases they spring from anthropological, philosophical or pragmatic cultural or societal motives. Examples of such general guiding ideas on school education are formation of "all-round socialist personalities" in the German Democratic Republic, or of "enlightened men" capable "*d'unir la générosité qui est l'intelligence du coeur, et la comprèhension qui est la générosité de l'esprit*" (Haby, 1977, p.6). Other conceptions are based on the premise that the school is an agency for transmitting cultural values. There is a fundamental difference between the conception of school as the agency leading the young into the realm of ideas, which are taken for granted, and the view that knowledge, including school knowledge, is *not* a given entity.

All these reflections indicate that guiding principles can only be fully understood by way of the underlying concept of the knowledge taught at school. There must also be a "view of man" (Huber, 1971) to direct the planning of education. A definite educational concept is impossible without some notion of what man and education are.

Guiding ideas determining the orientation of the curriculum are also to be found on the level of individual teaching subjects. For instance, biology may be taught from the perspective of the theory of evolution or from that of anthropology or systems analysis. Each perspective entails a different selection of contents and probably also different learning situations. Dahrendorf (1970) points out such distinctions in sociology. He shows how much difference it makes whether man is seen from the viewpoint of sociology or from that of economics (*homo sociologicus versus homo oeconomicus*).

Ballauf (1975) sees the connection between school and its social environment not only in their common concern for basic rights and values. He attributes to the school a variety of functions, such as the economic-technical function of preparing pupils for their future occupations, the religious function of giving them an orientation in metaphysics and ethics, the socio-political, the emancipatory and other functions.

Fend (1971) reduces the functions of the school to three basic ones, namely selection, reproduction and socialization. Bereiter (1972) limits them still more rigorously. According to him, the school's task is to transmit fundamental skills and techniques. It has no generalized educational mandate. Therefore it cannot presume to make moral values, ethical principles or behaviours, which anyhow are controversial in the society, an educational principle.

Another analytical framework is proposed by Frey (1975). He concentrates the tasks of the school into three guiding ideas. First, the school should provide culturally determined knowledge in the domains of science, everyday life, art, law and the state. Second, it should provide qualifications for different life situations. Third, it is a living space of its own character for pupils and teachers, in which the realization of human rights and other educational goals should be practised. According to Frey, one of many motives for this third guiding idea is the difficulty of initiating learning processes and demonstrating their meaningfulness day by day over several years if the outcomes of these processes can only be applied after a child leaves school. Another motive he sees is the right of the young to satisfy their life-needs. Since school takes up a large proportion of the pupils' lives, their needs must be met in the school itself. Overconcern with this issue can often lead to the premature introduction of certain learning themes, and this should be avoided.

These few illustrations point to the fact that guiding ideas should not be discussed in isolation. Their normative nature must not be lost sight of.

Before proceeding to reassess those areas of school education directly related to life-situations, it should be pointed out that definitions of aims may easily be suspected of being too abstract and idealistic. Their real sense may emerge during their application in practice. It is there that they must prove feasible, i.e. not only achievable but also acceptable to pupils and teachers as well as to the school authorities and the general public. Nevertheless the constructive function of theoretical notions of school education must not be ignored. Utopias originate from the inadequacies of existing systems. An ideal to strive for is, therefore, both desirable and necessary, even if it can never be completely realized (if it could be, it would not be called an ideal).

To illustrate the scope of the aims presented in the following pages, Taba's formulation of educational purposes may be mentioned. She subsumes school aims under the headings *democratic way of life, civic responsibility, creativity, economic self-sufficiency* and *self-actualization* (Taba, 1962, p.265). These terms demonstrate the affinity with lifelong learning in their emphasis on equipping individuals to cope, actively and operationally, with their present and future environment, and at the same time to develop their own personality.

3.1.1 *Self-actualization*

The all-round development of the personality, encompassing all the strengths and qualities of man, is a basic notion of liberal education. In accordance with this concept, the function of the school would seem to be to create learning situations which leave the learner sufficient latitude for such personal expansion.

"Physical and intellectual fitness" are only facets of a development process challenging the "whole person". Development of the personality also includes partisanship *for* eccentric individuality and *against* thoughtless conformity. Russell (1974) objects to excessive love of conformity. It is a characteristic of bureaucrats and the broad masses.

Innumerable terms have been used to define development of the personality as a paramount function of the school. Ego-

competence and self-development (Frey, 1975) emphasize the individual's own activity, his own part in developing his personality - in this case founded on the human rights defined in the UN Charter. In the Declaration of Human Rights the member-states have agreed to promote these rights through education. Of special significance for full development of the human personality are Article 1 (freedom, equality, brotherhood), Article 2 (prohibition of discrimination), Article 18 (freedom of conscience and religion) and Article 19 (freedom of opinion and expression). Finally, Article 26, para 2, states explicitly:

> "Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms."

Development of the personality is not something which takes place in isolation within the individual. The ego is formed through interaction with other people. It takes shape as a result of self-assessment and assessment by others, and is an interplay of intellect, emotion, and sociability.

Development of personality also requires the promotion of sensitivity, the challenging of ego strength and self-criticism. The interplay of these features makes it possible to evaluate and correct the process of becoming a complete person. All these qualities demand a high degree of independent thinking, autonomous judgement and unorthodox, self-responsible understanding. And to acquire these characteristics, "education for creativity" is necessary (Ulmann, 1968, p.139).

Only when alternative ideas, when fantasy and imagination are activated together, when interrelationships have been traced (somewhat on the lines of inclusive thinking) (see Schäfer, 1977), can a problem be precisely formulated and suitable solutions sought. The affective and cognitive capabilities of a person, and his willpower, are only helpful in his development into a well-adapted individual if they can be integrated. They must be internalized, their influence on the ego-identity must be activated. All this is reminiscent of the principle of progressive education which postulates that the will of the child must not be destroyed. In Dewey's view, every school child must be given opportunities to show what he really is, so that the teacher can find out what he needs to make him a complete human being.

Eisner summarizes all the approaches which emphasize the intentional openness of education and calls the aims resulting

from such approaches "expressive objectives":

> "An expressive objective does not specify the behaviour the student is to acquire after having engaged in one or more learning activities. An expressive objective describes an educational encounter: It identifies a situation in which children are to work, a problem with which they are to cope, a task in which they are to engage; but it does not specify what from that encounter, situation, problem or task they are to learn. An expressive objective provides both the teacher and the student with an invitation to explore, defer, or focus on issues that are of peculiar interest or import to the inquirer." (Eisner, 1969, p.15 f).

There is a need for models of instruction which take more account of creativity and imagination. Rationality is only one component of education. Self-actualization also means paying attention to the affective and moral orientations of children, creating a climate in which emotions and extreme views can be expressed and followed up (Junell, 1974, p.12).

3.1.2 *Competencies for action*

There is a trend to promote the pupil's ability to apply to concrete situations what he has learnt and the insights he has gained and, vice versa, he should be able to benefit from his own experiences and evaluate them in a proper way.

Many authors refer to this principle. Some advocate more experiments and educational games at school. Others transfer part of the lessons from the school to the community. This might mean, for example, that pupils interview parents or people in the streets, under the guidance of the school and in the framework of a teaching theme or project, that they plan and take part in excursions, that they participate in citizens' initiatives for building a playground or in public programmes. Underlying such activities and other applications of learning experiences is an educational aim that has a long history: learning by doing (Dewey) and doing directed by what has already been learnt.

This link between learning and doing was one of the main features of the *Gesamtunterricht* (integrated learning) movement.

Dealing with things plays an important part in this concept of education (Scheibe, 1969, p.101). Integrated learning was an attempt to make the pupils experience, observe and discover reality. Dogs, cats, rabbits and mice were taken into the classroom. Active contact with nature and real life was made an overall objective. The children, for instance, selected and arranged objects for herbariums from various standpoints (technical-economic, intellectual, social, ethical, aesthetic, religious). Integrated education aimed to unite life and school and to approach problems or teaching units from as many perspectives as possible. All educational values necessary for future life, Böhm (1931) explained, are "latent in the materials life offers". The child's emotional life and his ability to act must be brought together in order to obtain a comprehensive view of these educational values if social reality is to be made the subject of learning.

This approach, which had an important impact on the school of the 20's, shows that the idea of integrated activity learning penetrated into curricula (compare the schemes for rural schools (Krick, 1963)) and continued to inspire later developments (Odenbach, 1961; compare also the syllabus of the Culture and Community School, Ohms, 1923).

Promoting the capacities of school children for action is a contemporary aim, too. In terms of basic education this aim includes development of critical abilities and self-criticism. Hiller proposes interdisciplinary, multi-perspective learning. In his concept, schools should generate a basic capacity for taking action. What they have to foster is an ability to a) obtain an overview of relevant themes or action areas of the society, and b) participate critically in practical progress (Hiller, 1974, p.69). Since the meaning of cultural action is not constant for all times but must be continually reviewed, analyzed, modified and redefined, a person becomes capable of action only when he can participate in the criticism and clarification of institutionalized mechanisms in society. He must also be capable of remaining aloof from a particular course of action.

The figure given below will illustrate how Hiller tries to put these ideas into more practical terms.

Similar arguments are presented by Patterson (1973). He distinguishes between two viewpoints: man as an active and man as a reactive being. The latter viewpoint is based on behaviorist

OUTLINE OF A CURRICULUM FOR THE PRIMARY LEVEL (21.9.1972)

Socio-political functions Anthropological functions	Learning stages - school years			
	I	II	III	IV
a) Housing	Nursery	Block of flats	Town plan (municipal administration	Poor living conditions
b) Services/Administration	Post Office	Taxi headquarters	Hospital	Insurance company
c) Education	School	Teaching/learning materials	Teacher/pupil roles	Sports clubs/Peer groups
d) Production	Soft drinks factory	Internal structure of a business	Concern	Agricultural enterprise
e) Leisure	Wendy-house	Open-air pool Covered pool	Travel agency (tourism)	Churches
f) Transport	Technical supervision society	Petrol station	Aerodrome	Transport system
g) Commerce and trade	Supermarket	Summer sales	Banks	Monetary problems
h) Communication	Television	Cinema/film	Radio	Newspaper
i) Politics	Elections	Trade unions	Parties	Local finance office State budget
j) Celebrations & ceremonies	Birthday	Christmas	Funeral Cemetery	Political holidays (1st May)

FIGURE 2

Source: Hiller, 1974.

notions categorizing behavior as reflective, reactive, and responsive ("behavioristic view of man", see Patterson, 1973, p.62).

By contrast, the existentialist viewpoint emphasizes man's ability to take responsibility, his decision-making ability with regard to himself and his environment. Man as an active being

> "creates, to some extent at least, his own world. He is free, within limits, of course, and since he is free he is able to make choices and since he is free to choose, he is responsible for his action and behavior" (Patterson, 1973, p.63).

3.1.3 *Integrating real-life problems*

In his study on curriculum and instruction, first published in 1949, Tyler identifies three reference points for inquiries about educational aims: the learners themselves, studies of contemporary life outside the schools and suggestions of objectives made by subject specialists (1971, p.31). Huhse (1968) and Elbers (1973) report on the influence of this study on the development of curricula in the United States.

a) Historical background

The increased interest in a closer relationship between school and out-of-school life may be seen as a reaction to the preceding period of science-oriented learning. It should, however, be mentioned that the temporal phases of this interest may differ from country to country (Jung, 1972, p.101). Nevertheless, there is a good deal of evidence that in Scandinavian countries, in the Federal Republic of Germany, and also in the United States and some East-European countries the considerable influence of the sciences on the school has not ceased yet. In the German Democratic Republic this influence can be clearly seen in the description of the functions which the school should fulfil: "Mastery of the foundations of science including the general (polytechnical) foundations of modern production" (see Klingberg, 1973, p.78, and Frankiewicz, 1968). In the United States, and to some extent also in Canada, the development of science-oriented curricula commenced after the sputnik shock in 1957: the School Mathematics Study Group (founded in 1958); Science: A Process Approach (founded in 1962); the Earth Science Curriculum Project (founded in 1963). With a delay of some eight to ten years, this movement reached the Federal

Republic of Germany, where it first affected mainly science education. It certainly also influenced educational planning - the *Strukturplan*, established by the Deutscher Bildungsrat (German Education Council) in 1970, enunciated the principle of the orientation towards science in school learning. (For critical reviews see Garlichs, 1978, and Künzli, 1978a).

The expansion of knowledge, the extensive impact of scientific knowledge and modern technology on people's everyday lives have proved a challenge for the representatives of individual school subjects. The orientation towards science seemed to become the overriding educational principle.

Subject specialists then began to look for basic patterns of categorizing the confusing mass of scientific knowledge considered to be relevant to education. The idea of "structure of the discipline" was born (Bruner, 1960). Interpretation patterns were invented with the aid of which a multiplicity of natural science phenomena and knowledge could be reduced to a few basic concepts or fundamental ideas. Such concepts were for instance worked out in the "Geography Curriculum Project" and the science project "Science: A Process Approach". The last-mentioned curriculum was adapted for use in the Federal Republic of Germany (Spreckelsen, 1975). Examples of such fundamental notions are the concept of balance, which helped to subsume and explain a very large number of biological phenomena, or the part-whole-relation as an interpretation pattern for phenomena in physics, or the notion of urbanization in social studies.

Quite obviously, in all these efforts the dominant aspect was the ability to handle scientific procedures and insights. This dominance became the subject of mounting criticism. The epistemology of science, it was argued, cannot automatically apply to school learning and learning in day-to-day life.

From the point of view of learning psychology, many of these approaches had been well prepared (for instance, Gagné participated in the project "Science: A Process Approach"; Bruner, who had written studies on cognitive psychology, participated in the project "MACOS - Man: A Course of Study). But some critics pointed out the risk of a conceptual trichotomy between the cognitive, the affective and the enactive dimensions of learning. The school, it was agreed, was drifting into a situation where the complex problemes of cultural, private, leisure-time and occupational life outside school could no longer

be properly analyzed. Science-oriented education was accused of taking the opposite direction, namely concentrating on separate or isolated aspects of phenomena. Moreover, the life situations for which the school could prepare were entirely different in nature from scientific achievements. (On points of criticism see Hentig, 1970; Kambartel, 1973; Inglis, 1974). Parallel to this debate about science-oriented curricula and the demand that curricula should focus more on problems and real-life situations, the idea of de-schooling arose (Illich, 1971).

b) Fundamental human needs and real-life orientations

What are the characteristic arguments for connecting school learning more closely with life? Again, the connection of educational objectives with the underlying preconception of the functions of the school must be referred to when trying to answer this question. The theoretical assumptions hidden behind this concept may be summarized as follows:

Individuals develop in (sub-)cultural living areas. The history of a personal development process is at the same time a description of this person's concrete life relationships. Even if one assumes that an individual builds up a conception of his identity by reflecting about himself, he can never isolate himself from his relations to his environments, to the people he knows or wants to get to know. Thinking about himself includes past or desired experiences with others. Real-life relations and needs of the learner, his individual conception of life, should, therefore, be taken into account by the school.

Fundamental human needs developing in the context of the pupil's life can only be meaningfully assessed against the background of his environmental experiences. Maslow defines five fundamental existential needs: survival, security, life and belonging, self-esteem and self-actualization. Referring to these five fundamental needs, Parnell proposes that survival competencies should be developed at school. The question is: What competencies are required to survive in the various life roles during the last quarter of this century? How can a pupil cope successfully with life as a citizen, wage earner, consumer, and lifelong learner? (Parnell, 1977, p.152; also Gross, 1977). Such competences should be directed towards real-life roles:

> "Our reference point is the ability to perform real-life tasks - reading a newspaper, writing a letter

> for employment, reading maps and time-tables, locating a library book, making change, computing interest rates, learning to swim, completing a simple income tax form, balancing a bank checkbook, knowing the basis of property taxes, and demonstrating first aid procedures, as examples." (Parnell, 1977, p.152).

In an American school experiment, attempts to realize such aims were made not only within the framework of traditional disciplines. Three new subject areas were to help to achieve them: Citizenship education, personal finance and career education (ibid., p.152).

Among other aspects of an orientation towards everyday life are the following: i) Selection of educational aims and contents with reference to life situations; ii) heuristic learning; iii) future consciousness; iv) learning beyond the subjects.

i) Selection of educational aims and contents with reference to life situations

In the Federal Republic of Germany, partly also in Switzerland and Austria, Robinsohn's (1967) situation approach aroused much interest not only in educational circles but also among subject specialists (e.g. of geography, religion, to a limited extent also natural sciences and foreign languages). In the situation approach, life situations in the public, private and work sectors which are relevant to learning are identified. The pupils should acquire competence in these areas and not merely in the respective sciences. The real-life value of educational contents depends on the contribution, both specialist and general, they can make to an ability to cope with the selected life situations to which they are related.

Subject specialists have re-considered the conventional contents of their subjects, but without applying the specialized procedure suggested by Robinsohn for selecting and evaluating life-situations. Figure 3 shows an example of situation-oriented school education.

As early as 1918, Bobbitt had drawn attention to the doubtful value of exclusively subject-oriented curriculum approaches. He suggested that the curriculum should be understood as a process by which meaningful learning experiences were perceived,

conceived, and implemented. To achieve this, an analysis of life situations was necessary in order to be better able to assess what the curriculum should prepare for. Curriculum was conceived as a dynamic activity enabling educators continually to process reality in order to meet both current and future student needs (Hunkins, 1976, p.36).

DRAFT CURRICULUM FOR MATHEMATICS IN THE FEDERAL REPUBLIC OF GERMANY

Area	Description of situation	Possible mathematical contents and methods
Anti-pollution	Factories are nowadays obliged to dispose of waste products in such a manner that they cannot harm the environment. But why do some companies prefer to pay a fine - sometimes amounting to millions - rather than, for instance, refrain from dumping waste products into a river?	Linear optimization Linear function Rational numbers
Monetary system Capital formation	If one keeps one's money under the mattress, one has the same amount after a year as one had to start with (provided nothing has been stolen). If one puts it into a savings account, one receives interest. The amount grows. Can money work? How can it grow? What is the rate of exchange?	Compound interest calculation Interest calculation Rational numbers
Transport	Why is there a speed limit of 130 kilometres/hr., although car producers equip faster cars with better brakes?	Quadratic function Quadratic equation Mathematical models Marginal conditions

FIGURE 3

Source: Münzinger, 1977, p.215.

ii) Heuristic learning

Attempts have also been made to establish a relationship between learning and real life by actively promoting general thinking and problem-solving abilities (Shafter and Crabtree, 1963). Heuristic learning objectives (Wulf, 1972) and creativity in the form of divergent thinking are relevant key words (see the "Science Curriculum Improvement Study" or the "Nuffield Junior Science Project", also "Man - A Course of Study" and "Holt Social Studies Curriculum").

The following example is taken from a report on "Effects of a futures-focused curriculum on futures orientation among junior and senior high school students". It presents an instructional approach for pupils in Grades 8 to 10. A principal objective of the programme is to combine "skills and strategies of inventive problem solving" with contents and activities suitable for exploring alternative conceptions of the future. Four dimensions of this objective are identified:

"1) strategies for defining and solving open-ended problems ...;

2) specific techniques for facilitating fluency, flexibility and originality ...;

3) skills and strategies for interpreting trends and generating forecasts about the future (Glenn, 1975; Kauffman, 1976; Torrance 1976);

4) attitudes and dispositions conducive to inventive problem solving".
(Thomas and Coan, 1978, pp.4 f).

Learning to track down problems, being able to set up a hypothesis and investigate it, knowing how to collect information on different themes - these features of problem-solving sound "modern". But the inherent concept of the school (to enable the pupil to gain knowledge and to solve problems) goes back to the older theory of formal education: "Education in this context means acquisition and mastery of thinking methods and of the affective quality of man as well as of values, in short: 'methods' which will help the young person to gain possession of a variety of contents and issues to be used when required in the future." (Klafki, 1963, p.36).

iii) Future consciousness

A third aspect of the life-oriented educational perspective is future-consciousness. According to Toffler, "alternative futures" are orientation marks for the revision of general educational aims. Even conventional education seems to be determined by notions of the future, by wishes, expectations or fears. This applies in principle to any concept of education. A concept based on traditional cultural contents also implies an "architecture of premises about events to come" (Toffler, 1974, pp.5 and 6).

Toffler himself set up several scenarios with 15-16 year old high-school students. He asked them to sketch images of the future without delimiting the period to which their ideas related. "In general, at least for the teenagers I have experimented with, a future is something that happens to somebody else" (ibid., p.10). Although the experiment may not have been conducted very systematically, its results do show that the students were thinking in terms of an "impersonal future" (p.10). Toffler then repeated the experiment with the same students and concluded:

> "The way of life foreseen for themselves as individuals seldom differed from the way of life possible in the present and actually lived by many today. It is as though they believed that everything happening outside one's life simply bypasses the individual. The respondents, in short, made no provision for change in themselves, no provision for adaptation to a world exploding with change." (ibid., p.11).

Toffler maintains that it is a task of the school to sensitize its pupils to processes of change in the social, societal and political spheres including their temporal dimension. Individual conceptions of the future should be discussed, enriched, analyzed and elaborated in conversation and in practical actions. The aim should be "to help learners cope with real-life crises, opportunities and perils. It is to strengthen the individual's practical ability to anticipate and adapt to change, whether through invention, informed acquiscence, or through intelligent resistance ... She or he must have the opportunity to *make change* or to fail in the attempt" (ibid., p.13).

These future-oriented objectives can only be achieved if

learning itself takes place in unaccustomed, novel conditions. The pupils should be stimulated more consistently to organize their own activities and learning processes. It is also necessary to promote group work and compose the groups in such a manner that different generations will talk together and exchange experiences.

The educational idea of future-orientation and future-experience (Trommsdorf et al., 1978) also implies envisaging alternative future developments; contingent thinking should be encouraged. Havighurst (1976) proposed a program of education for the future intended to explore the opportunities for learning outside the school, e.g. in the work and learning settings of adults.

Helmer likewise stresses the necessity of educating for the future. In view of the increasingly sophisticated potential for technical storage of complex information, it is important to train pupils in data retrieval, "so that we will be able to make the most of this new capability both for enriching our lives and for solving the complex problems with which we are faced". But still greater importance attaches to problem solving as a subject of learning. The principal feature of the model he had in mind was interdisciplinary cooperation. The pupils should be taught "to look at real-world problems squarely, identify the issues, learn to recognize and discard phoney arguments, and seek a fair solution" (Helmer, 1977, p.39).

Mankin argues along similar lines. The school should not start training in specific working methods too early, since the techniques might very soon become obsolete. Rather should it lay "a basic foundation upon which successive layers of specialization can be built as needed". This foundation should include the development of interpersonal skills "for getting along in the increasingly team-oriented and participative work place as well as ... the acquisition of theoretical and applied knowledge in the physical and human sciences" (Mankin, 1977, pp.46-47).

In this concept, what matters is not only to know how to organize and master the process of acquiring knowledge, but, and principally, to learn how to apply what has already been learnt.

All this requires also a normative reorientation. Productivity in the sense of more, more and more cannot remain the leading standard of industrialized societies. "Our ability to

develop alternative values and lifestyles for living in a world based on something other than growth in material standard of living is a challenge that educators can ill afford to overlook". (ibid., p.49).

d) Learning beyond the subjects

The curriculum suggested by Astolfi, Coulibaly and Host is focussed on learning processes in the field of biology. The authors stress aspects of learning which are justified on the strength of their relevance to real life. The process-oriented part of this proposal is categorized as follows:

> "Application of fundamental languages (spoken and written language, mathematical language, symbols and codes, audio-visual language); work organization (individual work, group work); learning of methods (measurements and ratings, experiments, application to the environment); learning of techniques (specific and non-specific techniques for biology)." (Astolfi, Coulibaly and Host, 1977, pp.9 f).

One of the authors' intentions is to fit biology in Grades 5 and 6 into the framework of broader educational aims such as fostering powers of observation, critical thinking, logical operations and memory. For instance, objectives of instruction in the mother tongue could be directly linked with themes in biology teaching through appropriate methods.

3.2 Some shifts in the selection of content

One current debate concerns the status and the demarcation of subjects within the curriculum (Roth, 1968; Wilhelm, 1969; Bernstein, 1971). A revision of school subjects and curriculum contents entails a change in the standing and the pedagogy of the subjects concerned. For instance, the self-image of religion as a school subject has changed considerably within the relatively short space of some ten years. Religious instruction is no longer considered to be its sole task. Philosophical and ethical aspects are gaining in importance (Nipkow, 1975). Textbooks reflect this shift.

Similar developments have occurred in other disciplines and learning areas. In geography, for example. Since 1969 the

discussion about the methodology of geography teaching has been increasingly influenced by a proposal to redefine the educative content of physical and regional geographical subject matter on the basis of seven fundamental life-functions or categories of human activity: work, housing, fending for oneself, education, recreation, living in communities, and transport. This idea arose out of criticism of the prevailing didactic principle of studying individual countries, from the nearest to the farthest away. This pattern seemed to neglect cultural and, in particular, ecological considerations (Hoffmann, 1968). In a number of recent methodologies of geography teaching, the seven fundamental life-functions are used as a reference frame for identifying themes and selecting subject matter (see Schrettenbrunner, 1970, on the life-function "housing" as a theme of geography teaching). The teaching materials of the Regional Geography Curriculum Research Project (RCFP, 1975 ff.) also correspond to the idea of thematic, problem-oriented instruction. There are, for instance, units on regional development, on transport infrastructure, and on population problems.

These two examples may serve to show the efforts made by subject specialists to rethink the educative contribution or content of their subject. Making subject matter more relevant has become a maxim, albeit a diffuse one, of innovation attempts. The motives vary; there may be an aversion to school owing to dislike of a particular school subject, overburdening of subjects with new contents, or struggle for the survival of a subject.

What these efforts have in common is that they want to generate changes in learning from within the subject matter. Further examples are the suggestions for the setting up of an overall structure of biology teaching (Kattmann and Isensee, 1975), defined by the perspective of human biology (Kattmann, 1977).

However, the wish to renew contents may also be inspired by supra-disciplinary thinking. Recent empirical studies and models explore the effects of future-focussed curricula on learning. The rationale for such curricula is the necessity to prepare the young for a rapidly changing world (Hentig, 1969, and Toffler, 1974). Torrance (1976) reports on an experiment in which the pupils were asked to imagine they were living in the year 2001, and to write an essay about this simulated situation. The results were analyzed along the following dimensions (compare the summary by Thomas and Coan, 1978, p.3):

"1) expressed satisfaction with future career;
2) perception of the world/mankind and change;
3) heightened consciousness of trying to do something to make the world better/solve future problems;
4) originality, imagination and involvement;
5) solution to future problems proposed, and
6) perception of stress as a creative problem-solving person."

In the interpretation of this study emphasis is laid on the importance of a questioning attitude towards current knowledge and "facts" and on tolerance of ambiguity. But the greatest significance is attached to the promotion of willingness to imagine alternative futures "as both attributes of a teaching strategy and as possible outcomes of a course in future studies" (Thomas and Coan, 1978, p.3).

Such patterns of thought have not yet sufficiently penetrated into school disciplines. English, psychology, mathematics or the natural sciences still "supply" subject matter for the whole school. Despite all arguments for a closer relationship to life and for more orientation towards culture there can be no doubt that science still dominates the curriculum - most of all as a source of content. This applies not only at the secondary but also at the elementary and, especially, at the upper secondary level. A recent report of the Soviet school system (Kondakov, 1976) demonstrates the high standing of science and technology in curriculum revision (see also the "Statute on the Higher Schools of USSR", quoted by Burgess, 1977, p.16). It also emerges clearly from a report by Filipovic (1974) on the development of the Yugoslav educational system in the period 1958-1970:

> "It is imperative that all educational institutions, particularly those that provide vocational training and education, follow closely and keep pace with the changes and achievements in the sphere of *science* and *technology* as well as in economic development ... *and adjust to them promptly*" (p.528. My italics, U.H.).

The privileged status of science and technology is expressed still more distinctly in the statement that the prolongation of compulsory education and the sustained and rapid growth of the programs and curricula of these schools are linked with the advance of science and technology (Filipovic, 1974, p.529).

The role of the sciences as the traditional suppliers of educational topics has deep historical roots. In the middle ages, they were considered to have an intrinsic educative value (compare the *septem artes liberales*. See Dolch, 1963). Acquisition of scientific knowledge became the overall objective of education. It also played some part in neo-humanistic education, although there the focus was not on the sciences themselves, but on the development of the personality.

In contemporary education, the influence of the sciences manifests itself in the methodologies of the various subjects. In German, for example, linguistics influenced instruction to such a degree that a historically comprehensive treatment of literature was well-nigh impossible. The educational promotion of the communication issue gave new impulses to the study of German language and literature. Likewise in science teaching a critical attitude towards encyclopaedic treatment of science achievements is evident.

3.2.1 *Making the subject matter more relevant*

Schools in industrialized countries have always been organized on the subject principle. In his history of curricula in the Western world, Dolch (1963) calls the *septem artes liberales* the general structural pattern of mediaeval schools. In accordance with this pattern, the pupils were to be familiarized with arts such as arithmetic, astronomy, rhetoric or aesthetics. Nowadays other disciplines have been added, and the educational concepts assigned to the various disciplines have undergone considerable change. But the basic idea that learning should be oriented by arts or sciences has survived. Currently curricula contain, for every discipline, one, or several competing, methodologies describing the criteria and specific necessities which the subject matter to be taught must fulfil. The textbooks used in the schools may sometimes deviate from these criteria. De facto it is the methodologies that determine what subject matter is relevant. Discipline methodology and textbooks together constitute a code which, in combination with the syllabus, prescribe content.

However, notions of interdisciplinary curriculum design and innovation also exist. They must, of course, be able to win the support of the subject teachers. The latter must be motivated to employ interdisciplinary working methods. A precondition for such motivation is that these notions are adopted by the school or, at least, find in it favorable conditions.

Examples of favourable conditions are indicated in new proposals to divide curriculum plans into interdisciplinary learning areas within which instruction in separate disciplines is abandoned or only partially incorporated. These developments will be discussed in the section on integrated curriculum.

Bloom (1971) maintains that the subject-defined structure of curricula does not correspond to the problems and individual experiences of pupils. He admits that the foundation of a curriculum or syllabus cannot simply be demolished. But it might be possible to make at least part of school instruction more open to life and to relate it more closely to real-life problems.

> "... the school might free students to probe more deeply into the issues of current life, the conflicts, and the problems man is encountering or will encounter in the future" (Bloom, 1971, p.197).

The following schema illustrates possible relationships between certain school subjects and their contribution to life-oriented learning (see next page).

School subjects and life might be connected in the way suggested by the Schools Council. Life-situations could be devised which challenge the pupil to apply what he has learnt to unfamiliar problems. This would enable him not only to practise transferring his knowledge, but also to seek ways of applying this generalized school knowledge in order to arrive at a better understanding of reality.

a) Comprehensive patterns of interpretation

American and British curriculum research stimulated the quest for the common core, the unifying patterns of interpreting the world of nature and the human being. The canon of school knowledge seemed to have become too disparate, the organization of knowledge to be transmitted to the pupil too fragmented. A lucid order and structural concepts were required. "Whatever context is chosen, this common core for all abilities is vitally necessary if non-streaming and the comprehensive need for mobility are to be anything other than shams." (Beddis, 1973, quoted in Macdonald and Walker, 1976, p.55). The question therefore was: How can a subject be organized on the basis of only a few ideas and concepts?

Several attempts in this direction have been made. The

SCHEMA FOR CONNECTING SCHOOL LEARNING WITH LIFE SITUATIONS

Personal relationships	In what ways are relationships between parents and children today different from those in Victorian times?	In what ways do efficient methods of contraception influence relationships between men and women in our society?	In what ways can authority problems be explored in dramatic terms	What are the mutual obligations of an employer and an employee?
Social awareness	In what ways have concepts of marriage and the family been changed by historical factors?	In what ways has the development of science contributed to social progress?	How far should drama set out deliberately to influence the values of a society?	What is the impact upon society of advanced forms of occupational specialization?
Moral judgement	Can international relations ever be conducted on any principle other than that of national self-interest?	Should scientists use their specialized knowledge for war purposes?	Should Brutus have agreed to join the conspiracy against Julius Caesar?	By what principles should a person's income be determined?
Appreciation of the environment	How have various historical eras contributed to the design and character of local buildings?	In what ways has technology influenced local ecology?	How can the design of a theatrical set highlight chosen features of an environment?	How have patterns of regional economic growth affected the face of England?
	History	Science	Drama	Economics

FIGURE 4

Source: Schools Council Working Party on the Whole Curriculum, 1975, p.43.

Idea Centered Laboratory Science Project (Van Deventer and Duyser, 1969) is an experiment with an organizational pattern of instruction that is based on a few unifying ideas, such as the idea of dynamic equilibrium, the idea of change and variation, extrapolation and interpolation, interdependence and interrelationship. The Schools Council Integrated Science Project (SCISP, 1974) focusses on the concept of change (changes in behavior, activity, motion, organisms, atoms). The adapted version of SAPA used in the Federal Republic of Germany organizes learning contents by means of basic interpretation patterns such as the concept of interaction.

Similar comprehensive patterns of interpretation are also proposed for subjects other than the natural sciences. Taba's Social Studies Curriculum is structured according to the key concepts of causality, conflict, cooperation, cultural change, differences, interdependence, modification, power, societal control, tradition, and values (Taba, 1969, p.V ff). Such concepts or patterns can become significant for lifelong learning if they open up new learning possibilities in unaccustomed situations (understanding of surprising phenomena through previous practice in applying these interpretation patterns to a variety of themes and contexts at school).

The search for conceptual schemes and fundamental ideas may be the expression of a desire to probe for the "essentials", i.e. the basic themes and principal issues of a discipline. This also implies an effort to re-define the educative value of the discipline concerned. Transfer of knowledge, insight through abstraction, are notions that have generated motivation for reorganizing and re-interpreting discipline contents. Identification of what different subjects have in common has been a general guiding principle in these efforts.

These approaches, described as concept-oriented by Häussler (1973), interpret reality in wider contexts. They thus represent a considerable step forward on the way to new thinking about the common features of items of knowledge and about new educational possibilities. One reason for the trend to regard the essentials of a discipline or a field of inquiry as a significant educative factor is that it may help to reach *all* pupils, "regardless of whether or not they are destined for subsequent academic careers, and regardless of what their current concern might happen to be. The common-core curriculum has obvious attractions as a democratic device: It seems to hold promise of providing for all children" (Becher & Maclure, 1978, p.103).

Mention has already been made of process-oriented approaches. Their proponents argue "that the structure of a discipline, which according to Bruner should be the basis for the construction of a curriculum, is determined not so much by its store of knowledge but rather by the processes leading to knowledge, i.e. the methods, working modalities, activities applied or performed in a discipline in order to gain new knowledge" (Häussler, 1973, p.39). A precondition for process-oriented approaches is a common system of research procedures and problem-solving strategies for all natural science disciplines. Application of the scientific methodology for gaining knowledge becomes a "worthwhile activity" (Peters, 1971) in various school subjects (see MACOS, SCIS, Holt Social Sutdies Curriculum).

b) Intensification of the relevance for life and the applicability of a given subject

In the Curriculum Manual Frey et al. (1975) described for the first time in the German language the whole range of contemporary research on methodology for different subjects (see also the new series on trends in individual subject methodologies: for religion (Lott, 1978), for social studies (Beck, 1978), for specialized instruction in primary school, first level (Spreckelsen, 1978)). In all these disciplines, the significance of learning contents for nonschool situations is an important concern. In the mother tongue sector, a number of courses centering on individualized development of fluency in the language have been developed in recent years. Various speaking situations were devised which could serve as starting points for developing the pupils' ability to talk about familiar phenomena and real-life issues (Kochan et al., 1971; and overview by Wilkending, 1971). In music lessons, attempts were made to let the pupils produce noises with the aid of simple instruments and to try their hand at composition. They were asked to write down music played to them when they were still ignorant of the conventional notation system. This experiment led to a number of proposals for teaching creative notation of heard music. From listening to and interpreting music they progressed to handling sounds productivity (experimental music education). Active invention and realization of music are receiving a new emphasis. In art education, similar approaches exist with the aim of enlarging considerably the spectrum of instruction, i.e. not to confine it to art appreciation and drawing. Cooperative activities are planned. The pupils are encouraged to design and implement their own plans for art projects. A remarkable feature of this approach is the important

role played by cooperative procedures. The same applies to trends in music education. In other disciplines and fields of learning too, similar development can be observed.

c) Renewal of educative functions

To realize just what it means for some subjects to have to assess their educative contribution in terms of a new concept of education, the normative foundation must be recalled. Even today the assumption still persists that the raison d'être of a subject is to introduce the pupils into the realm of ideas. It is taken for granted that the ideas and insights of geography, law, mathematics or the social sciences are relevant to education. In a historical analysis, Ballauf (1975) explains the implications of any particular conception of what the educational process should aim to achieve. Plato's educational system liberated the individual from the fetters of primary, everyday preoccupations by enabling him to participate in the whole through comprehension, advice and action, through science and politics. The ancient Greeks wanted to show man "the way to truth, i.e. to perception of the whole within which we are living and striving, to its standards and structures, its possible objectives and its origins. The individual was to be guided to discovery of what is, and the insights and comprehensive understanding he had gained were to render him capable of influencing society politically, socially and pedagogically, to steer it and enlighten it about itself" (p.382). The realm of ideas was the core of educational objectives.

> "Not until much later did the view that truth is not absolute and unvaryingly expressible prevail over the idea of ontological truth. It is not the unassailable outcome of once-and-for-all knowledge, but must be constantly reformulated, found in ever different and more complex contexts, and be justified anew. We are participating in an endless learning process." (Ballauf, 1975, p.18).

The contemporary school, Ballauf claims, neglects recognition of the endlessness of learning, above all awareness of what we do not know. The limitations of our knowledge, and not just the ignorance of the individual pupil, must be recognized. Efforts to renew the educational functions of traditional school subjects have received a new impetus from this development.

Broudy associates another function with subject-centred

learning. Renewed importance should be attached to the idea of humanism in education:

> "*Relevance* and *relating* are the two terms that characterize this brand of humanism. 'Relevance' means shifting from the study of logically organized subject matter to study as a part of social or political action; 'relating' means shifting from the study of logically organized subject matter to establishing warm personal relationships with all people, but especially with the poor, the black, and the young." (Broudy, 1977, p.145).

Broudy explicitly emphasizes the need for establishing a relationship between problem-solving and specialized learning. "Didactics without heuristics are sterilized; heuristics without didactics are palaver" (Broudy, 1977, p.145). Problem-solving should not become an independent learning subject.

Künzli (1975) and Frey (1976b) approach the issue of the justification of educational contents, including subject-related contents, from another standpoint. They maintain that the decisions on learning contents and purposes of education must not be left to the curriculum designer or the textbook author alone. Everyone directly or indirectly concerned should be involved at every stage of re-assessing the educational contents. The way in which this process is organized decisively affects the potential of what will finally prove to be the justified educational content of a subject. These processes of communication and elaborating educational contents may be described as interactive learning, argumentation and decision-making:

> "The people involved include, in addition to pupils and teachers, especially parents and other persons. This term refers to those groups who are in contact with the learners in their families, occupations or leisure activities. In direct democracies, e.g. Swiss cantons, or regionalized educational organizations, those indirectly involved, i.e. the whole population, decide on the framework of educational objectives and themes. Those directly involved, i.e. the school community, then develop and take decisions on the individual sections within the larger framework, such as learning objectives, forms of learning, etc." (Frey, 1976b, p.80).

3.2.2 *Curriculum integration*

The preceding section touches upon the issues involved in subject-centred contents and their revision. The considerations which follow concern the prospects of achieving continuity and life-relatedness of learning by means of linking what is transmitted by the school with present and future non-school life problems.

As has already been shown, subject methodologies have worked out modes - some of them very revolutionary - for defining the relationships with other subjects. In this re-setting of priorities, motives such as renewal of the discipline, de-specialization of knowledge and revaluation of the pedagogical purpose of contents played varying parts. Motives of this kind can also be discerned in integrative approaches.

What actually is the meaning of curriculum integration? It includes interdisciplinary learning and beyond that, the question as to how the conventional subjects can be so organized that several subjects are linked. These links should afford opportunities for cooperation and possibly lead to new fields of learning. Roth suggested in 1968 that one distinguish between the following learning areas: humanities, social sciences and physical and biological sciences. "These are the three wide horizons within which we see the world and people, explore and interpret them." (Roth, 1968, p.74). An example of an analogous approach is the reorganization of the upper secondary level in the Federal Republic of Germany. The area of compulsory education is subdivided as follows: languages, literature, art; social sciences; mathematics, natural sciences, technology; religion and sport (KMK, 1972). A third example is Countesthorpe College. Traditional disciplines are here clustered into broad areas of inquiry: humanities, languages, sciences, and practical and creative arts (Bernbaum, 1973).

On the other hand, there are models which do not fundamentally reorganize the curriculum yet can still be considered integrative approaches. This is the case when there are possibilities of "*articulating the work of teachers themselves particularly across subjects*" (Ingram, 1979, p.8. My italics, U.H.). One of the best known examples of an interdisciplinary curriculum, which is used both in individual disciplines and in teamwork of teachers, is the Humanities Curriculum Project in Britain (1970). It is an attempt to coordinate the teaching of history, geography, English, religion and social studies.

Controversial social and moral issues are the links between the subjects mentioned. To formulate this the other way round: each of these disciplines is required to make its own contribution to the treatment of controversial issues:

> "Here emphasis on traditional subjects is giving way to a fuller realization of their interrelationship, and the intention is to use the experience-based learning techniques of the primary school for humanities at the secondary level." (Whitfield, 1971, p.111).

Some examples of controversial issues are "war and society", "poverty", "relations between the sexes", "living in cities":

> "By a controversial issue we mean one which divides students, parents and teachers because it involves an element of value judgement which prevents the issue being settled by evidence and experience." (Humanities Curriculum Project, 1970, p.6).

This becomes evident when dealing with the question of whether the two World wars were justified, or whether American involvement in Vietnam was necessary. Of course, this approach raises a variety of implementation problems, which cannot be discussed at this point (on this subject compare some references by Macdonald and Walker (1976, pp.75 ff) and Rudduck (1973)).

Whitfield reports on similar approaches concerning the overall structure of the secondary school curriculum (1971, p.111). James proposes a flexible four-fold curriculum based on "1. interdisciplinary enquiry, 2. autonomous subjects, 3. remedial programmes, and 4. individual pupil interests. Enquiry, making (creating), and dialogue are central activities, school being viewed not as an introduction to eternal certainties by paternalistic teachers but rather as an extension of experience, frequently through group work" (1968).

A differently structured model of a combined curriculum based on four categories was designed in Australia (Claydon, Knight and Rado, 1977). The authors assume that the school should promote participatory democracy. "Such a society demands a knowledgeable, skilled, experienced and socially active citizenry. ... Education thus becomes a matter of providing a person with the essentials for responsible action." (ibid., p.24). Figure 5 indicates how far these four categories

ANALYTICAL MODEL FOR CURRICULUM CONSTRUCTION

Subcategory definition	Curriculum subcategory	Mode of experience
Basic forms of thought and understanding: 'know that' or propositional knowledge about the world.	INFORMATIONAL CONTENT	subject divisions and/or inter-disciplinary and/or integrated study
'Know how' or techne: use of the 'tools' of language and calculation, etc. associated with literay and numeracy at progressively more advanced levels of operation.	INTELLECTUAL SKILLS	Use of language; numerical techniques; physical skills and other forms of expressive behaviour.
Conscious evaluation of attitudes and beliefs. The formation of interests and their pursuit. Application of knowledge and skills to one's own situation.	PERSONAL SOCIAL DEVELOPMENT	Decision making opportunities. Assessment of life options. Exploration of the consequences for society of various beliefs and attitudes.
Reciprocal community-school exploration, involvement and meaningful participation.	SOCIAL SKILLS	Environmental study. Work experience. Home-school projects. Community enrichment.

FIGURE 5

Source: Claydon, Knight and Rado, 1977, p.41.

(informational contents, intellectual skills, personal-social development and social skills) structure the curriculum. Obviously, school disciplines are not to be abolished but are to be grouped according to these four general school functions.

Another possibility of orienting several disciplines by a common principle is indicated in a comparison of curriculum plans for various school subjects. It is being carried out by a working group engaged in devising a strategy for environmental education (Eulefeld and Puls, 1978). This group aims to examine the contents of geography, politics, biology and social studies in order to identify contents which are significant for environmental education. They have found that the social and regional aspects of geography in particular can make a contribution to environmental education. In political education, themes such as the effect of political frontiers on the development of regions, or the development of productive forces are relevant to environmental study. Biology deals with environmental issues through such concepts as ecosystem. preservation of the countryside, steady state and cycles of matter and energy. Social studies could discuss environmental problems from the aspect of the relationship between leisure and work or from that of tourism.

Broadly speaking, there are two models of curriculum integration. One tries to achieve integration by combining existing subjects. The other looks for broader clusters of subjects. Neither model necessarily implies the abolition of the subject system. Rather are they concerned with open teaching, co-operative activities and the coordination of learning contents. Restructuring the curriculum is doubtlessly one of the most important tasks of curriculum integration.

> "Some integration schemes merely require that the teaching of subjects is more closely coordinated and even the most ardent proponents of integration accept the need for some structuring of the curriculum into manageable areas of experience. In effect the challenge of integration may be seen, not so much as an assault upon subjects as such, as a call for the re-classification and re-definition of curriculum content along more rational lines." (Schools Council Working Party on the Whole Curriculum (1971-1974), 1975, p.41).

Interdisciplinary studies in the sense of Bernstein's "focused curriculum" (1971, p.60) are in line with the combination model. They are compatible with the subject system in school. Instruction must, however, centre on issues that are of common interest to several subjects and thus constitute a kind of coordination frame. Course studies, on the other hand,

are given the status of a quasi-autonomous subject. The Humanities Project is an example of this. Special periods in the timetable are set aside for it. One of the fundamental theoretical attempts to define the problems of integration was made by Bernstein. He makes a distinction between classification and framing of educational knowledge. Classification describes not what is being classified, but the relationship between the contents. It is concerned with the principle by which the contents are to be classified (Bernstein, 1971, p.148). By contrast, framing is intended to explain the structure of the educational plan and the course of lessons. It shows the context in which knowledge is transmitted and received.

Bernstein holds the view that content may be either more or less strictly classified. It depends essentially on the degree of boundary maintenance between the contents. The rigidly classified type of organization of the knowledge to be transmitted he calls "collection code", the other type, which tries to reduce or cut across classification, he labels "integrated code".

Fundamental ideas, such as power, ecological balance, or transcendence are a precondition for integration. These might also be described as integration cores serving to select or, if necessary, restructure subject-centred knowledge from integrative viewpoints. Examples of such cores or fundamental ideas have been mentioned above. Bernstein's integration theory, however, gives little information on the characteristics of integration cores. It has already been shown that such cores may also be used within a subject, without any intention to integrate several subjects around a unifying idea.

In Bernstein's theory, fundamental ideas are the central point of consideration. They are the major influence on the structuring of learning matter. Three reference points are necessary factors in the selection and implementation of such key ideas: the everyday knowledge of pupils and teachers, the specialized knowledge to be transmitted or restructured (in more general terms, the specific learning matter), and general aims of education. This set of cores represents one viewpoint in curriculum development. But dynamic thinking about educational knowledge requires a second viewpoint, in addition to the first one. This second viewpoint regarding the conditions of school instruction is framing.

This broad outline of Bernstein's theory permits idendtification of problems in curriculum integration, some of which have not yet been satisfactorily solved. These problems are of major significance both for the horizontal and for the vertical dimension of learning. How they are solved will partially determine the extent and the conditions under which integration will contribute to improving the life-relevance of learning and promote continuity in the acquisition of knowledge over many age levels.

a) Awareness of the limitations of knowledge

Most European curricula are constructed on the principle of the subject-based collection of knowledge. Bernstein (1971) calls this principle the "collection code":

> "Any collection code involves an hierarchical organization of knowledge, such that the ultimate mystery of the subject is revealed very late in the educational life. By the ultimate mystery of the subject, I mean its potential for creating new realities. It is also the case, and this is important, that the ultimate mystery of the subject is not coherence, but incoherence; not order, but disorder; not the known, but the unknown." (Bernstein, 1971, p.57).

Awareness of what we do not know (Ballauf, 1975) comes, if at all, at the end of socialization in the school subject - as does an introduction into inter-disciplinary issues. The result is that many pupils never learn that knowledge is something provisional, unfinished and unstable. Thus they cannot experience the researcher's creative perception of discrepancies between theory and reality or his general dissatisfaction, which are precisely the sources of his motivation for work. Research procedure can be made a learning subject; it actually is in process-oriented educational approaches. But rarely does instruction relate these procedures to the fact that a research process feeds on contradictions, discrepancies and logical inconsistency. An exception is the curriculum "Ways to Knowledge" (Wege zum Wissen, 1978), which has adapted a number of elements from the Canadian "Inquiry Curriculum". It is concerned with scrutinizing alternative theories to explain phenomena.

Even from the standpoint of cognitive psychology it would seem advisable to pay more attention to perceived discrepancies in the process of learning. For, Lind (1975) contends, the

pupil will be optimally stimulated to learn when what he learns is not from the start unambiguous and consistent.

b) Qualification and role concept of teachers

The relationship between classification and framing cannot regulate itself. Two factors affect this relationship: the qualifications of teachers and their role conceptions. Both factors determine to some extent how far pedagogical ideas other than classification and framing are involved in the selection of contents and teaching methods. The teacher's own educational principles and his concept of his role must be taken into account. Any curriculum designer must ask himself how a teacher will handle the proposed content, on the basis of his qualifications and educational philosophy.

c) The nature of unifying ideas

Integration means linking, the interweaving of separate parts or areas. What should be linked under what conditions, and how can this linking be achieved? The parts to be joined together require a bracket or a common viewpoint, a unifying idea.

Research in this domain is still not far advanced. The aforementioned survey by Häussler (1973) has shown that such ideas need not necessarily originate from the disciplines or sections of disciplines which are to be combined. They may be cross- or supra-disciplinary issues around which, or with the aid of which, integration is made. Evidently, such issues or unifying ideas are closely related, implicitly or directly, to educational concepts.

3.3 A new emphasis on individual learning experiences

In the United States, the idea of humanism has recently received increasing attention in educational circles. The humanistic way of thinking should be exploited, the humanistic tradition should be re-emphasized in the curriculum (Broudy, 1977). Moriarty (1977) states, however, that this should not be understood to imply a decision for or against humanistic or behaviouristic education. Rather should the curriculum integrate the useful elements in both humanistic and behaviouristic theories and ideas.

In other countries, this issue is often discussed from

different perspectives: individualization, increased inclusion of social aspects, sensitization for pupil's identity problems, understanding of one's own affective world, the experience-relatedness of learning, or focus on "human relationships". A common characteristic of these approaches is the principle to base learning on the individual and his world of experience (section 3.3.2 of this chapter).

According to Bereiter, the function of (organized) education is to prepare "a better life for children", and to create learning situations suitable for this purpose. This aim should not, however, be misinterpreted to mean that the sole objective should be to devise activities which are fun for the children.

> "I suggest as a criterion that child care should be concerned with increasing the quality of children's *immediate experience*. By whose standard? Inevitably, by the standard of the people who have control. These will be mainly adults, although children can enter into the process of proposing and judging alternatives ... I am proposing that the cultural life of children should have quality, meaning and moral value in the here and now rather than in some future state of development. Cultural facilities and activities should be designed to enable children to make fuller use of the human qualities they already have rather than to develop new qualities." (Bereiter, 1977, pp.378 ff).

In practice this means, for example, to ask pupils more often to do something instead of looking on passively. The proportion of unstructured learning opportunities for the children to pursue their own experiences, desires, interests and work projects should be enlarged. More consideration should be given to the pupils' world of experience as a basis of school learning (e.g. constructing a project, enacting a sketch, making a report, judging the work of others, or conducting discussion).

> "This broader view of curriculum recognizes that the school is not concerned only with having every child learn a body of knowledge, but, rather, that he experiences a method of facing life. A child may learn civics from his teacher, but he learns citizenship from his playmates!" (Oliver, 1970, p.8).

The activity or experience concept cannot be directly equated with heuristic learning. It includes the additional thought that out-of-school experiences and the non-academic life of students should be taken into account.

Dewey has justified the need to make school learning experience-related, and has illustrated it by several teaching models (Collings, 1935; see also the Collings experimental school in rural Missouri (1917) and the Winnetka Plan in the United States in the early 1920s, described in Maxson, 1976). In recent curriculum research this idea is followed up, though it is not in every case explicitly related to Dewey's theory. Zimmer (1973) and his collaborators (Arbeitsgruppe Vorschulerziehung, 1976a) developed a pre-school curriculum for 3-5 year olds of various social origins. The curriculum units are situation-oriented and named after the children's life situations, such as Children in Hospital, Losing one's Way in Town, Living Accomodation. Situations are understood as "sections out of social reality that can be experienced and resolved. Such situations can only be identified in the course of curriculum development and application. They contain specific and unique characteristics (which may, however, have general elements)". (Zimmer, 1973, p.33).

Similar aims are pursued by Stenhouse (1975). His ideas on the life-relatedness of learning are reflected in the Humanities Curriculum Project. The curriculum resulting from this project offers suggestions for pupil activities in and out of school. The materials are designed to activate the pupils' existing experiences. So far materials have been produced on eight themes relating to controversial issues. They are based on themes such as "Living in cities", or "Poverty" or "Man and Work". Further approaches to this problem area are the Science 5-13 projects, Wagenschein's pragmatic reflections on science teaching, and recent models for geography and art teaching (see Otto, 1974).

3.3.1 *Pupils' horizon of "understanding"*

Frey regards life- and experience-relatedness as one of three guiding principles of school education, the two others being "the school is concerned with cultural objectivization" and "the school is a life area of its own for pupils and teachers":

"Life situations are concrete fields of action in

> all domains of life in which individuals or groups may find themselves, or which they create themselves through their actions. Like cultural objectivization, every life situation has a genesis. It has a context. In other words: It is subject to complex structural or systematic conditions. This applies to a child's fear of hospitals, to communication with authorities, to the issue of data protection, to preventive medical examination, to hiking in the mountains and other life situations. Such situations including their contexts are subjects for school learning." (Frey, 1975, p.11).

Life situations in their various forms, Frey maintains, cannot be simply introduced into the school as cognitive content. Rather should the pupils' interpretation patterns and views of the world (including their ability to act in complex situations) be activated in answer to the development need of pupils and adults. Life situations are fields in which the pupils have to acquire competence at school.

Learning theory and creativity theory support the demand for relating the learning process more closely to the child's experiences. In a survey of literature on creativity research, Ulmann (1968) maintains that material which has been understood will be retained better and will be more readily transferred (Guiford, 1950, and Hilgard, 1919; see also Ulmann, 1968, p.132). If it is true that better learning results will be achieved when the teaching material is presented in larger contexts, then this is an argument for relating learning more closely to experience. This will provide the pupil with an easier and more intensive access to what he is learning. He can materialize it, get inspiration for ways of looking at problems, and integrate the multiplicity of aspects with the aid of an example; he will be able to see the interconnection of aspects and place details in their proper context.

> "'It is important that the pupil be allowed to choose some of his activities himself'..., 'that leisure activities be incorporated more fully in the learning process, and that diligence be considered commendable even when it does not concern school work' ... Furthermore, the child must not be afraid to express his own ideas. Imagination and ideas which seem at first glance nonsensical should be welcomed by the teacher ... Instead of rating every idea the

> child has as right or wrong, the teacher should give him opportunities to test it ..." (Ulmann, 1968, p.133).

These psychological insights are further arguments for increased incorporation of out-of-school life situations and, most of all, the child's own experiences in school learning. Personal experiences are the best basis for developing initial learning processes and finding a context for new learning.

It would, however, be a doubtful practice to include the pupil's out-of-school experiences in school instruction for the sole purpose of arousing his enthusiasm for something that does not really interest him. The objects of pupils' experiences must themselves become contents of instruction. This can be done in language teaching, for example. Young (1965) reports successful results of such approaches, which "have shown that, if reliance is placed on *children's own awareness of their environment*, the look of a spider on the wall, the fear of loneliness, the noise of a storm, they can break through with eloquence and learn to use words with delicacy and control. Here ... is evidence of how well children respond and think when they are working from motives of their own rather than to a curriculum imposed from without" (Young, 1965, p.83).

3.3.2 Individualization

A closer relationship with pupils' own experiences can also be achieved by asking them to treat a given broad theme according to their individual interests. Such arrangements can be easily pre-structured by suggesting various aspects of the theme on wich the treatment might focus. The pupils may then choose from this spectrum of aspects. Proposals such as this are currently being tried out at the upper grammar school level in the Federal Republic of Germany (basic courses and advanced courses).

Another example is the IPN physics curriculum for Grades 9 and 10 (electronics). The teaching plan for this unit consists of an introduction including presentation of sub-themes and advice on the organization of group work. In the second stage, four different themes are offered: experiments with transistor wiring; construction of logic circuits and simple calculation elements; purchase of phono equipment; problems involved in technical progress exemplified by electronics. The pupil selects one of these subjects which is then treated by a

group. In the third stage, the outcome of the work done by the various groups is summarized (reports by pupils and exhibitions with contributions from the teacher and general discussion; cooperative evaluation and summary, tests and discussions of the results).

A distinction can be made between two main variants of individualized instruction:

1) the pupil participates in the selection of contents or in decision-making processes regarding the general form of instruction;

2) the learning process, or teaching method, is individualized according to the cognitive structure, the motivation and interest of the pupils.

That is to say, modes of learning are adapted to the pupils' cognitive, psychological and motivational characteristics (Schwarzer and Steinhagen, 1975). Research on this subject has been mostly devoted to the second variant. The first is still largely unexplored, although it is in particular need of conceptual and empirical clarification which would permit a more adequate assessment of the possibilities of incorporating pupils' experiences in the planning of instruction. If the maxim is to be followed that "school curricula should emphasize auto-didactics including self-learning and inter-learning, development of educability and readiness for further learning" (Skager and Dave, 1977, p.35), then the pupils' non-school experiences must be taken seriously and utilized as a basis for their participation in decision-making.

Some recent projects, such as "pupil-centred instruction" (Kyburz-Graber, 1978) translate this maxim into practice. In such experiments, difficulties have frequently arisen because the teacher had not been adequately informed about the new role called for by this type of instruction. Moreover, he had few opportunities of familiarizing himself with his counselling function. Or, the teacher did not regard the pupil-centred approach as a new model at all, since any good and committed teacher had always taken care to do justice to his pupils. Pupil-centred instruction is a good example of the fact that new conceptions can only be realized if opportunities are provided and processes initiated which will enable teachers and pupils to become familiar with the new forms of instruction, to think deeply about their implications and to reconsider their own conceptions of school teaching.

One way of overcoming the obstacles facing such innovative approaches might be to insert into the teaching materials supplementary information on the purposes of the new form of instruction and the consequences it entails for teacher and pupil roles. Examples reconstructing and illustrating successful experiments of this kind might also be given. Equally important is an indication of the difficulties that may arise in implementation. The examples just mentioned should also show where the outcomes of the experiment were not as satisfactory as had been expected. Such interplay of problem analysis and constructive advice in the supplementary information is most important in order not to lead the teacher or pupils to expect an ideal and achievable type of instruction; this would only result in disappointment.

Further, the supplementary information may contain examples showing that timid or unmotivated or frustrated pupils in particular benefit greatly from this form of education; what special measures are required and what are the limitations of the model for the group of pupils concerned.

Aids of this kind are probably indispensable since they will motivate especially those teachers who are not yet convinced of the need for the experiment. This is a central aspect in regard to the idea of lifelong learning. Many teachers are likely to say that lifelong learning is a good idea in the abstract. Suitable teaching materials will challenge them to recognize its concrete, practical advantages.

Here, a point made earlier in this study must be reiterated: time is essential, and so are opportunities for consultation and interaction between teachers, pupils and researchers. The teacher needs time to adjust his thinking to the new model, not least because it means reconsidering certain elements of his role concept and practical experience, and, if necessary, reforming and changing them. That these personal and social elements occupy a key position in determining the success or failure of an innovative model is shown in a number of studies (Susteck, 1975; Heitzer, 1976; Greimel, 1977, and Hameyer, 1978a).

CHAPTER 4

ESSENTIALS FOR LIFELONG LEARNING FROM CURRICULUM RESEARCH AND DEVELOPMENT

The role and contents of the school curriculum and the underlying conceptions of the functions of the school have been discussed in Chapter 3. Trends in curriculum development, both theoretical and empirical, indicate a change in the school's function. Some traditional subjects are assuming greater weight, or they are grouped into larger learning areas. Rarely, however, is a subject entirely eliminated. Significant aspects of this change of functions coincide with research on lifelong learning.

The purpose of the present chapter is to examine discernible trends in curriculum development relating to this change of function, with a view to discovering a basis for argumentation in favour of laying the foundations for lifelong learning in school. This will be done with the aid of the vertical and horizontal dimensions of school learning described in the introduction (see p.1).

The opinion that the school can make a contribution to lifelong learning is held not merely by UNESCO agencies. Other international organizations, such as OECD, ILO, the Council for Cultural Cooperation of the European Council, as well as national institutions in various countries, share this view. There is a consensus in these quarters that adaption of the concept of lifelong learning will result in extensive provision enabling "every individual, irrespective of his existing qualifications, to continue his vocational or general education" (Voss, 1978, p.17 - in reference to UNESCO, 1974).

The following points pertaining to the change in school functions and to curriculum revision represent a first summary of Chapter 3:

a) The school will have to make continuity of learning beyond the completion of school education a serious concern.

b) Selective measures and structures which stunt some individuals and promote only a chosen few conflict with the objective of providing every pupil with the best possible learning conditions (irrespective of his social origin, sex, race, domicile, ranking in what are supposed to be objectively determined achievement levels, irrespective also of his previous educational career).

c) Reference, for instance by specialist teachers or parents, to academic disciplines to which school subjects are related, is no basis for continued existence of these subjects and their contents. The change in school functions implies a change also in the type and constellation of criteria for legitimation. One suitable criterion is the achievement of the school in creating the ability to cope responsibly with novel life-situations.

d) Mediation of analytical competence and problem-solving capacities is another component which is gaining importance in deliberations about curricula. The school, it appears, is being increasingly expected to make a special contribution to individuals' self-actualization and responsible participation in shaping community life and the society as a whole (Chapter 3, section 3.1.1).

e) Considerations of this kind interfere with the self-image of school subjects. The postulate of relevance to life-situations becomes a driving force for revision, since it questions the exclusive nature of dicipline contents, i.e. their intrinsic educative value, by emphasizing active participation in public, cultural, economic and social life (including the understanding of simple or complex relationships between nature, culture and society).

f) Another area involved in the change of function is that of teaching methods. Since teaching

principles and styles profoundly influence training directly or indirectly, they should not conflict with recognized aims of lifelong learning.

g) Further, the school should promote democratic behaviour and prepare for participation in decision-making in a way that is commensurate with the degree of democratization possible in the various fields of life and interaction.

h) Finally, the school schould provide orientation aids to help a pupil choose his first job and occupation.

These aspects will be considered in this chapter from two perspectives: First, the contribution of curriculum research and development to an accentuation of the vertical dimension of learning will be assessed: How are school learning stages to be connected with future life? Second, principles concerning the horizontal dimension of learning will be discussed: Which relationships between school and out-of-school life contexts are significant for the school in the perspective of lifelong learning?

4.1 Essentials concerning the vertical dimension of the school curriculum

Among the many aspects of the vertical dimension, not all of which can be dealt with in this study, a point of major interest is the beneficial function of school curricula for the pupils' post-school life. The approaches referred to in Chapter 3 yield some information on this issue:

4.1.1 *The curriculum and the future of the learner*

Obviously the reflections discussed in Chapter 3 on the integration of real life problems and on how to make subject matter more relevant are directly connected. In the quest for clarification of the contribution the school can make to the future life of the pupils it would seem useful to assess the trends emerging in curriculum research in respect of the special features of life-situations and life-conditions (1). The

(1) A life-situation means a delimited structure of relationships

p.t.o.

channels and methods to be used to this end will depend, among other factors, on how accurate and concrete our knowledge of the future life-conditions of the pupils can be.

Equally important is identification of the common elements in differing life-situations or life-conditions. What are the similarities in the challenges the individual will have to face in the future? (Similar questions have already been studied by Robinsohn, 1967, and Knab, 1969). If answers to these questions can be found, a school subject's contribution to preparation for coping with these challenges can be more accurately assessed. This applies equally to renewed reconsideration of general educational objectives. One outcome of this reconsideration process might be an emphasis on creative learning. Enhanced awareness of the pupils' imagination, of the humanistic values in education in general, and practice in alternative thinking would correspond to this trend (see Chapter 3, section 3.3.1, in particular Patterson, 1973, and Junell, 1974).

What then is the role of school curricula, assuming that the school can prepare the pupil for his post-school life? The curriculum approaches referred to and the change in educational thinking with regard to the functions of school subjects indicate that the real meaning of general school education is receiving increased attention. There may be different opinions about the concept of learning for life-situations. But the fact is readily apparent that the future-orientation of learning as a systematic problem of curriculum legitimation is gaining new importance.

between persons and their environment. This structure determines or, at least, considerably affects the scope and limits of interaction between these persons. A life-situation may be described in terms of individuals, i.e. pertaining to one or a few persons. The same applies to its duration. Life-conditions, on the other hand, encompass wider dimensions. They are characterized by existential or social life foundations common to many people, a group or a subculture. It seems important to make a distinction between these two concepts in order to prevent confusion between life-situations as understood by Robinsohn or Bobbitt with the life-conditions of a social stratum or an entire generation.

4.1.2 *Curriculum and cultural change*

Knowledge of the present life-conditions of pupils and their potential change in the course of schooling or after is also required. Situation analyses, prognoses or other procedures will have to be included in the curriculum planning process in order to obtain information on social, societal and cultural changes.

Every curriculum anticipates a near or remote future insofar as the thoughts reflected in it are guided by certain assumptions about the benefit of education. To put it in colloquial language: the school should equip the pupil with something that will be useful to him in his later life.

Some directions in which answers to the questions as to what benefit will be derived from the school curriculum may be sought, can be concretized by reference to Chapter 3. It may be useful to distinguish between various areas of life (see Chapter 3, section 2.1.3). Within these areas situations or categories can then be identified which the pupil is very likely to encounter in the future, and with which he will most probably be better able to cope by applying his school knowledge.

School and curriculum theories are based on a context of cultural and societal developments. They have issued from these developments. Their purpose is to reflect the characteristics of these developments and to deduce from them information on future life-situations. And this means finding out what will be the probable features of the future of the pupils and their identity problems. In this way it may be possible to find indicators for the role of lifelong learning in the school.

The curriculum approaches mentioned in Chapter 3 indicate the phenomena in cultural life and change with which the school curriculum will have to contend if the concept of lifelong learning is to be taken seriously as a criterion for decision-making concerning the curriculum. Destruction of spontaneity and the serious loss of ability for direct perception are criticized as is the growth of materialistic functional thinking. According to these theories, natural worlds of experience have been largely eroded. Readiness to listen to and discuss the problems of others is on the decrease. Sociology adds the further criticism that despite supportive measures the disadvantaged in industrialized societies cannot in fact avail themselves of the chances life offers. Ignorance, selfishness,

prejudice and exploitation flourish in the shape of hidden or at least tolerated modalities of behaviour (Bogdan, 1975, p.35). Looking at alternative life models (Gizycki and Habicht, 1978) one may realize that some of these rather generally formulated characteristics of cultural change have been the motivation for the development of religious countercultures or initiatives for self-help or collective living.

Bogdan (1975) formulates a potential consequence: the school curriculum must concern itself with issues concerning the formation of identity and the behaviour of individuals in a particular culture. It could do so in a manner which would make it possible to analyze permanent dialectic conflicts (Bogdan, 1975, p.33). Such analyses would provide a foundation for critical and responsible confrontation of these conflicts. This applies not only to cultural phenomena related to specific times or situations, but also, and in particular, to existential issues such as limitations of one's own actions, death, loneliness, unfulfilled needs.

Musgrove analyzes the development of modern societies insofar as it affects the school curriculum from a sociological perspective. He defines five characteristics of modern societies:

a) declining demand for skilled labour

b) the greater expectation of life

c) the rapid obsolescence of knowledge

d) the earlier physical (and perhaps emotional and intellectual) maturing of the young

e) less distinction between the social roles of men and women.
(Musgrove, 1968, p.17).

Taking these characteristics into consideration, Musgrove describes the functions of the school in terms of the necessity to educate the young for a historical period

> "in which young people can explore not only their world but themselves. ... The society of the future is likely to require this extended period of 'play' for a variety of reasons. In the first place, the sheer speed of social change, the frequent changes of role which will be required of adults, will call for *versatility* and *flexibility of a high order*. The growing child must not be set too early in too

> rigid a mould. In the second place, social justice requires that youth of the future shall not be committed at too early an age to the life-style into which they happen to have been born." (Musgrove, 1968, p.13. My italics, U.H.).

Andragogy or life-cycle psychology could help, for instance, to identify crises and situations typical of specific phases in human life (Erikson, (1950) 1974; Lidz, 1968; Havighurst, 1973; Houle, 1974). The curriculum could be geared to peak experiences in life (Lyon, 1974) in order to take care of the foreseeable structural problems involved in men's shaping of their lives. Coping with psychological crises and conflicts connected with development requires the individual's whole energy, competence and experience.

What have theories on life cycles to do with school knowledge? School is an institution intended to contribute to competence in dealing with post-school challenges and situations. It seems apparent that this task could be facilitated if such challenges, situations and the manner in which they influence man's life were known at least in outline. In an advanced stage, research on man's life-cycle may be expected to make a contribution to this problem. Admittedly, it is still rather unclear for how long a period school knowledge is retained and activated. In which areas can long-term effects of school education be expected? Which dispositions and which skills acquired at school are short-lived? Where lie the boundaries for planning such themes in the curriculum, and where does a risk of overplanning set in? At present research cannot satisfactorily answer these questions.

4.1.3 *The forecasting curriculum*

Sections 4.1.1 and 4.1.2 of this section agree that it is necessary to obtain scientific insights into the pupils' future which will make it possible to answer the following questions: Why should I learn mathematics or Latin or social science? Of what use will the contents transmitted in these subjects be to me, when will I profit from what I have learnt at school?

With the aid of forecasts of future life conditions and situations the potentialities and limitations of the school regarding lifelong education can be better assessed. One reason why this should be so is the forecasting function of a curriculum (Frey, 1971, pp.66 ff). The basic purpose of a curriculum,

namely to mediate a certain education, must be understood to be more than just a wish. "Every curriculum contains an implicit or explicit forecast unless learning as such is its sole purpose" (Frey, 1971, p.67). The prognostic components of the curriculum should be identified for various reasons. In the first place, forecasts in a curriculum give some indication of the hopes invested in this curriculum. Secondly, they characterize the normative foundations of the underlying concept of education.

Frey distinguishes three forecasts contained in the curriculum. The simplest form concerns the behaviour at the end of schooling (Forecast I). Forecast II states what qualifications will be required in order to behave competently in future life situations. "It is assumed, explicitly or implicitly, that certain kinds of information or forms of instruction will, after some time spent in an environment not identical with the school, produce results which may be called behaviours" (ibid., p.68). Forecast III relates to the benefit derived from learning processes for life in a *changed* world. Forecasts of the last type probably involve a high degree of uncertainty, since the end effect of learning which is forecast depends on the learning processes in and out of school, and on intervening learning processes as indicated in Figure 6.

THREE CURRICULUM FORECASTS

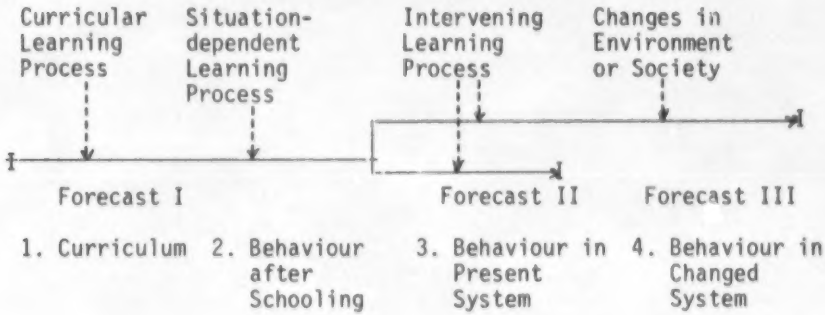

FIGURE 6

Source: Frey, 1971, p.67.

The problem of how to make and justify such forecasts is not merely a technical one. One must also ask whether curriculum theory is at all capable of justifying such forecasts, and whether such justifications are admissible from a scientific point of view. Even an affirmative answer to these questions in no way rules out the possibility that other forms of "justified" speculation on the end effects of school curricula could also be meaningful.

Notwithstanding these difficulties, some implications regarding the prognostic character of school curricula may be drawn from Chapter 3. Three central dimensions of the vertical aspect of lifelong learning were identified in that chapter. This vertical aspect in itself already refers to the area which has just been discussed in connection with the forecasting functions of a curriculum.

The research approaches and curriculum examples mentioned in Chapter 3 have given a first impression of the directions which research and educational practice curriculum construction and evaluation might indicate.

a) The school has the function of creating the foundations for further learning during and after the schooling period. In the context of educational aims for heuristic learning, possible methods corresponding to what is understood in educational circles by *self-directed learning* have been indicated.

b) Another aspect mentioned in Chapter 3 is that in view of the infinite diversity of possible future life situations, and also in view of uncertainty about the conditions under which the pupils of today will have to live and work in the future, they must develop capacities enabling them to orient themselves and act in unaccustomed circumstances. This aspect might be called *competence for individual and cooperative mastering of problems arising in novel situations.*

c) Thirdly, there are present situations which are in all probability almost identical with future situations the pupil will encounter. If such situations can be found and described, it will be possible to prepare him for these specific situations by giving him appropriate opportunities for learning. In this context one might

say that the school should mediate *situation-specific orientation skills*. These skills are connected with the idea of lifelong learning in that they should be at a certain level of abstraction in order to be relevant to similarly structured situations. Thus the pupil should be enabled to apply or adapt his knowledge and abilities in specific situations to similar situations.

4.1.4 *Unifying issues for learning and the organization of knowledge*

This subject relates to the pedagogical dimension of the structuring of knowledge. What organization of knowledge will promote the pupil's capacity for recall? Which basic principles should he learn? On what didactic principles (unifying issues and terms of interpretation within a field of study) should school learning be built so that it can be re-activated in out-of-school life contexts?

These questions bring to light the complexity of the problems that will be investigated in this section. Research on curriculum integration as well as on methodologies for specific school subjects is searching for new forms of knowledge organization for the purpose of structuring the curriculum (see the examples of curricula given in Chapter 3, section 3.2).

Broudy deals with some basic problems of knowledge organization. He thinks that medical men, for instance, could not recall sufficient school knowledge in subjects such as chemistry or biology to pass the matriculation examination, but are capable of arguing about material that contains chemical concepts. "One may say that the difference lies in the *category-based reference frame*, in the perspectives and in the contexts which are important for interpretation. Very often we are not aware of these schemas when we use them." (Broudy, 1971, p.331. My italics, U.H.). He further states that it would hardly be possible to interpret the experiences of a physicist, an economist, historian or poet without the keys for working with knowledge supplied by the school. Like Polanyi (1962), Broudy labels the phenomenon of forgotten but re-activable knowledge *tacit knowledge*.

The importance of integrated education for lifelong learning depends on whether the curriculum has been structured with

the aid of a category-based frame of reference or, to use another term, on unifying ideas. Generalizing categories of this kind should render contemporary issues within areas of experience more understandable. Immediate relationship to life and learning of procedures for gaining knowledge (learning to learn) are associated factors. Integrated learning alone means reflecting on the general educative value of a school subject or cluster of subjects. Here the vertical dimension which is so important for lifelong learning comes to the fore again.

4.1.5 *Preparation for taking responsibility*

Most of the curricula referred to in Chapter 3 assume that the main function of the school is to prepare the pupil for actively organizing his later life. He should acquire practical competences that will help him to handle differing, even unusual life situations (see Chapter 2 on lifelong learning). What is lacking today is humanistic judgement, social commitment and sensitivity to the problems existing in highly industrialized and consumer societies. Competitive behaviour, aggression potential and alienation render an implementation of recognized humanistic values difficult. "The fetishism of material values" (Dave, 1976, p.343) goes hand in hand with a "moral crisis of education" (Bereiter, 1972).

These views imply support for the efforts to revalue the function of critical examination of culture and society within institutionalized education. Publications dealing with this aspect are based on varying motives. A plea to make critical reviews of institutions a subject of learning may stem from a perspective of world policy (Hiller, 1973); or from a conviction that learning should be humanized. "The spirit of humanity" (Suchodolski, 1976) seems to emerge as a new educational principle. Kirpal writes:

> "Our present age, witnessing for the first time the emergence of a global civilization, is confronted with a challenge of unparalleled dimensions. Man's technology and the social organization have far out-stripped his spirit, resulting in a state of confusion and chaos, the loss of moorings and directions. What we need now is a great renewal of the spirit of man to redress the balance of the three inter-acting forces in the making of civilization. ... The concept of lifelong education arises from a

> growing crisis of contemporary civilization; lifelong education is required to fulfill the need of contemporary men to control, adapt and create the relevant technology and social organization for a new quality of life and for a meaningful quest of more effective and appropriate values of the spirit." (Kirpal in Dave, 1976, p.98).

These reflections yield some important arguments for laying the foundation of lifelong learning in school. They emphasize that the school must again turn to humanistic education. It should do so in a manner which will underline the connection between the humanization of school learning and out-of-school humanistic action. This implies that one of the pre-eminent tasks of the school is to reform the curriculum and learning contexts so as to achieve more stringent vertical articulation. Pursuing this goal down to individual school subjects will be a piecemeal exercise, if only because the learning contexts are not constructed out of the material of individual disciplines and must therefore, overcome resistance in each one.

4.1.6 *Integrating the pupils' former experiences*

A secondary school pupil may gather experiences in preschool or primary education which will outlast his entire school life. Acquaintance with communal institutions, improvisation of a song, participation in working groups or the sudden discovery of condensation on a window pane - such primary experiences leave their mark. Concrete forms of experience in the shape of learning events of this kind are certainly instructive. Similar examples could be given of out-of-school experiences.

It is readily apparent that such learning events affect subsequent stages in the learning process and so create an awareness of the retrospective section of the vertical dimension. Learning must, therefore, be based on the pupils' previous experiences and expectations.

This realistic demand for flexibility of curricula in the perspective of lifelong learning must not obscure the relative status of school education. Frey maintains that the methodology of science teaching, for example, is almost exclusively concerned with institutionalized education, "although the remainder of this learning area is probably larger and more effective" (Frey, 1976a, p.6). He names, as examples of non-instituional-

ized learning situations in which people are confronted with natural science phenomena, the musical experiences of the young in electro-acoustics, the impact of science on the programmes of political parties, the ways in which scientific subjects are discussed in everyday life, the specialized books on the atom and the evolution of the earth, the experiences gained in repairing toy trains - all these very often precede science instruction.

4.1.7 *Neglected educational aims*

To maintain a permanent motivation for learning it is necessary for the pupil to visualize the profit he will derive from participating in permanent further education. Such profit may consist in earning opportunities, occupational mobility, development of his personality, more competent participation in communal and political life, etc. This perspective does not as yet seem to receive much attention in the contemporary school (see the relevant paragraphs on the introductory function of the school in Chapter 1, section 1.4.1, and Chapter 5, section 5.1).

Curriculum revision in the light of lifelong learning also concerns aims that contribute indirectly to education for the future. Some aims of this kind have already been incorporated in state constitutions or school statutes: the pupil should "find his identity, he should learn to take social and political responsibility" (Wimmer, 1978, p.244); he should learn to respect different conceptions and styles of life ("respect" in the sense of actively supporting, not merely of tolerating); he should learn to promote the richness of culture. Other aims which should receive greater emphasis are:

a) to further understanding between differing cultures, peoples and societies, and to support this understanding by one's own action or help to prepare the ground for it; (intercultural understanding);

b) to take more account of the social contexts of one's work and of the general wellbeing (social context of one's own activities);

c) to justify arguments, value judgements, decisions to the best of one's knowledge and by means of morally defensible judgement, and to act accordingly (active efforts to obtain information);

d) to develop sensitivity for cultural, political or social minorities and to endeavour to understand their position (commitment to minorities);

e) to justify one's own actions on the basis of ethical principles (centering on humanity).

4.2 Essentials concerning the horizontal dimension of the school curriculum

This dimension has several facets. Firstly, out-of-school life may be considered as an object of theoretical reflection within the classroom. Secondly, it may be regarded as a field of empirical study. Both aspects play an important role in curriculum discussion. (See Chapter 3, section 3.1.2). Thirdly, the out-of-school experiences and everyday life of the pupils may be seen as a determining factor for the horizontal dimension of the curriculum and should be taken into account in decisions about methodology. (For an approach in this direction see Chapter 3, section 3.3). Fourthly, a connection between school and life could be achieved by attempting to involve the public and the parents in school life.

A reflective or direct encounter with reality, it is assumed, will sharpen the sense of commitment and participation, promote learning motivation, create an authentic understanding of the complexity of living and working areas, and facilitate acquisition of the ability to orient oneself in new environments or situations. The same is true of the integration of pupils' life worlds in the planning and process of learning. In this way the pupil will himself experience that learning and life cannot be set apart from the curriculum but require a certain continuity, a link with the personality and the initial position of the learner.

4.2.1 *Reflecting on out-of-school life*

The relationship of school learning to the environment, a key issue in curriculum discussion, has powerfully influenced both the debates about objectives and the criticism of learning contents. Chapter 3, section 3.1.3, has dealt in some detail with the relevant trends in curriculum research and development.

> "The increasing specialization of knowledge made the curriculum more remote from pervading personal-social needs and problems. During the early decades

> of the 20th century, emerging social reforms and the new demands for educational reforms called for a closer relationship between the curriculum and life. A new and wider conception of curriculum was the inevitable result." (Tanner and Tanner, 1975, p.16).

It is now largely agreed that the function of the school can no longer be to turn the pupil into a miniature scientist. The general educative value of a school subject and its contents should be re-determined. Those putting forward this argument tend to demand that subject contents should contribute to a better understanding of general problems of out-of-school life. This is the starting point of lifelong learning perspectives. An example: at the annual conference of the American Educational Research Association in Toronto (Canada) in March, 1978, a Project in Environmental Action, Community Education (PEACE) was presented. This project had been developed on the basis of a programme in which the present-day needs and the problem awareness of urban residents were central features of the curriculum. "Our citizenry", it was explained, "needs to be educated in the process of making intelligent value choices and of translating these choices into courses of acttion if it is to be capable of doing more than merely being cognizant of its demise. The need exists for environmental education curricula that *combine effective awareness, knowledge, and cognitive abilities with an action oriented model for valuing*" (Bennett et al., 1978, p.2). Any number of examples of this kind could be adduced. Thematic organization of subject contents, the present relevance of a theme as against "eternal" issues are focal points of the dispute about specialized teaching methodologies.

One result of these debates can, perhaps, already be discerned. The number of projects and curricula centring more determinedly on problems from the pupil's life and environment has distinctly increased (critical watching of television, education for leisure time activities, information media in society, alcohol, smoking, meditation). Another category of problems includes: English for immigrant children (Leeds University, Great Britain), Children explore their environment (Schools Council, Great Britain), Man changes water circuits (2nd Ulm Model, West Germany). "Constant inter-action of thought and action" (Deutsche Unesco-Kommission, 1977, p.10) and the combination of theoretical knowledge with real-life problems find expression in these educational endeavours.

4.2.2 *Enlargement of learning activities outside school*

Following the 19th Session of the UNESCO General Conference, an experts' meeting stressed the importance of connecting the school with out-of-school activities. The school would have to rethink its relationship to the environment.

> "School, inevitably, must be open to the world with its resources and with all its economical, cultural and social assets, at least if we want to become, amongst other things, a centre for lifelong education. *But how can this opening be achieved? What changes can be brought to the curriculum, the methods and of course teacher's training?*" (UNESCO, 1978a, p.15).

No direct answers are supplied by the curriculum approaches referred to in Chapter 3. But the analyses they contain converge in many points of criticism, and taking note of these convergences may facilitate the search for answers.

The school, it is claimed, isolates itself from conflicts in its environment. The pupil is no longer challenged to air his problems and experiences in the school. Simultaneously, the de-schooling argument is gaining ground. An alternative to the introverted school must be found.

Some recent school experiments have developed projects in which pupils participate in real-life development tasks outside the school. These projects attempt to make out-of-school learning an integral component of the curriculum. School and out-of-school learning are intertwined. This corresponds with the aim "to enhance greater interaction between the educational system and its social, cultural, and economic setting" (Deutsche Unesco-Kommission, 1977, p.13).

Among such approaches are alternative schools or free schools (USA) and community schooling.

In the alternative school at Tvind (Denmark), pupils, together with their instructors, have designed a windmill generator and built it expertly with the aid of specialist technicians. This generator has a capacity many times that required by the school itself.

Another example of a project is *building a children's*

playground (see the report edited by Moser (1974) on the Experimental Secondary School at Heidenheim, (West Germany)). In this project the school cooperates with the town planning office. Criteria are developed for selecting the best location for the playground. Security regulations are dealt with. Layout plans are drafted on several scales. In addition, excursions are planned, financial matters discussed and inquiries carried out.

4.2.3 *Inter-generational learning within the school*

This section, although not directly linked with Chapter 3, concerns a category almost forgotten in the curriculum debate. With the exception of Third World countries, intergenerational learning has not yet been able to gain entrance to compulsory schools. In modern state schools there are only sporadic opportunities for parents and children to engage in common learning activities. Untrained teachers, for instance, have not been integrated into the state school system. In a modern school one will not find the village pharmacist telling the children stories about caries (see the interview with a member of the project Social Learning (Munich, West Germany) described in Hameyer, 1978a). When parents visit the school, they rarely do so for the purpose of their own education. They want to find out about their children's performance or, on school open days, about particular problems, activities or objects produced.

Young suggests a more far-reaching participation of parents in the life of the school. Most working people will only feel self-confident in the school if they feel that they have something to contribute to it. "Many of them are proud of the work they do with their own hands. How can they bring this asset to the service of the school? Most obviously, by adding to its physical equipment. This has already been done by fathers who have with their own hands built swimming pools and sports pavilions, and the same kind of effort could be called upon for the construction of other buildings." (Young, 1965, pp.76 ff).

CHAPTER 5

FUNCTIONS OF THE SCHOOL CURRICULUM SUPPORTIVE OF LIFELONG LEARNING

The preceding chapter has summarized the trends in curriculum research which converge with ideas about lifelong learning. This final chapter will draw conclusions from what has been expounded in Chapter 4 and extend the discussion to three general functions of the school curriculum. As stated in the introduction to this study (Chapter 1, section 1.4), the school curriculum is variously viewed in these trends as

a) an introduction into the concept and possibilities of lifelong learning;

b) a medium to prepare and facilitate orientation about occupations and non-occupational life in different societies in respect of the needs and possibilities of lifelong learning;

c) a continuous support of pedagogical principles of lifelong learning in terms of learning methods or of cooperation between school and society.

Generally speaking, the study demonstrates that some existing curricula as well as recent curriculum approaches contain many ideas favourable to lifelong learning (see Chapter 3). The preceding chapters outlined various arguments supporting the thesis that lifelong learning is one important frame of reference for curriculum renewal. These arguments show that the contents of written syllabi and textbooks should be reviewed. The extent to which the traditional curriculum enables the school to fulfil its role will have to be redetermined. The three functions described in this chapter may help to stimulate discussion and research in this subject.

In most European countries, also in the United States, Canada and elsewhere, uncertainty has arisen as to the contents and characteristics of primary education for all. This issue

seems to become a cardinal one. Some countries try to meet this demand by separating the organization of primary education from that of specialized instruction. This does not necessarily solve the problem of what should be the basic stock of necessary aims and contents of learning, and in which areas specialization is required. This fundamental problem is discussed in the following pages. The above-mentioned functions indicate some of the aspects involved.

5.1 Introductory function

Nearly all approaches to curriculum research mentioned in this study are based on the assumption that the school can equip the pupil with competencies that will last into adult life, although there is as yet no satisfactory knowledge of which are the long-lasting effects of school education. Against this background, the reasons why the school curriculum should prepare for lifelong learning can be elucidated.

5.1.1 *Common education for all*

If general education means common education for all, and the objective of common education is to bring together learners of different origins and different experiential backgrounds in order to promote learning transcending the boundaries of generations, sub-cultures, social interests and classes, then the school must provide common education for as long as possible, since it is almost the only place where the young up to the age of 16 to 18 can learn together with students from other strata, classes or sub-cultures.

One aim of common education for all would be to render the pupils capable of handling present and future life contexts which they are likely to encounter. One useful method would be to work out alternative forms of coping with these life contexts. This would motivate the pupils to use their initiative in handling similar or novel life contexts in later life.

The school curriculum can serve this aim both through appropriate selection of learning contents and through provision of suitable learning situations and projects. The essential objective should be to enlighten the pupils about the necessity for lifelong learning, and the benefit they will derive from it. How this can be done in practice has been indicated in Chapter 3 under the aspects of "A new emphasis on learning experiences" and "Integrating real life problems".

5.1.2 *Impact of the changing society on the school curriculum*

Another, more pragmatic argument for curriculum renewal is of a structural nature. The character of economic and cultural changes in industrial societies does not permit a conception of the school as an autonomous agency. Recent technological developments, emerging changes in the family structure, the increase in divorce, the crisis of energy supply, specialization and the division of human experiences, side-effects of monotonous work, disadvantages and lack of learning equality in urban and suburban regions, ethnic and sub-cultural conflicts: all these phenomena together convey an idea of the unavoidable impact of the changing society on the school curriculum. They are characteristics of the environment of pupils and parents; the pupil comes into direct and indirect contact with them. The school can help him to learn to understand these developments better. And such understanding is necessary because the examples given are starting points for a conscious and responsible life within these cultural and societal contexts.

Learning to understand does not merely mean comprehending what is happening. Something must be juxtaposed to these developments, something that can influence them. In the chapter on major trends in curriculum research and development these aspects have been considered from the viewpoints of promoting openness to experience, developing ego strength, as well as actualizing the individual's own capacities and competencies. He must be capable of defining his own identity under conditions of cultural and economic change. This calls for conscious efforts to orient himself actively in complicated and partly contradictory future environments, to participate in further development and to reconcile the social aspirations of subcultures with those of the society. Here is an eminently important task justifying the proposal that lifelong learning should begin at school.

The cultural forms of man's life and his intervention in natural interconnections are a new issue mooted in the discussion about basic values of interhuman and intercultural coexistence. The school must, therefore, redefine its functions within this societal development. It must decide how the curriculum can be adapted to this task (emphasis on future-orientation, support of the pupils in their search for identity, reestablishment of the systematic connection between general educational objectives and subject matter, strengthening of the relevance of learning to real life, etc.).

5.2 Orienting function

Life-relatedness as a criterion for school learning brings to the fore two aspects:

a) How can the school curriculum concern itself with present life conditions outside the school, and hence with the pupils' actual problems? (Horizontal dimension of the curriculum.)

b) Lifelong learning under the aspect of activated life relationships in the curriculum involves the temporal and future perspective. (Vertical dimension, see Chapter 1).

It has been shown earlier that the school curriculum includes prognoses. The question to be asked concerning this future-perspective would be: How can future life conditions be anticipated in the curriculum? What does the school contribute to an ability to master future life conditions in the sense of lifelong learning?

The future-oriented life relationships of school curricula are associated with the cultural and economic changes in society. These changes will probably create new learning needs. A pupil should, for example, be enabled to orient and inform himself about institutional and individual opportunities for lifelong learning. These orientations should include information on training and further education institutions which offer appropriate learning provision. In some European countries this orientative function takes the form of increased basic vocational training, especially in the 10th year of schooling, and of provision of aids for orientation about occupations and vocational choices.

Another aspect of the orientative function of the school curriculum concerns the pupil's future in a wider context. Its prognostic function (see Chapter 4, section 4.1.3) implies intentional educational processes with the future life of the pupil in view. If knowledge and its future application are regarded in this sense as a unit, the future life-conditions and life-situations in which school knowledge would have to be activated must be assessable at least in outline. Knowledge of the basic issues that may arise when such situations are actually confronted will make it easier for the pupil to handle them. The orientative function of the school curriculum thus consists in providing orientation for the development of future life-

conditions and for means of coping with them. This orientation should not be confused with set information. It can be realized by a variety of learning methods.

Curriculum theory will have to investigate more thoroughly the kind of contribution the school curriculum can make to preparation for future life-conditions. With this task in view, what are the desirable dispositions the school can develop in the pupils? It will be useful to distinguish between dispositions of varying temporal scope (lasting dispositions and dispositions that can be activated in the medium or short term). In addition, types of school knowledge, and types of disposition and competency should be identified. Three dimensions may be relevant to such a classification of school knowledge:

a) Type of outcome or effects of school learning processes - (dispositions, attitudes, competencies, skills, etc.)

b) Duration of learning effects

c) Status of the learning: directly present and subject to recall; latent, in need of activation; passive competencies.

The stimulation of dispositions and competencies will depend on several factors which have not yet been sufficiently investigated by empirical research. For instance, it is not clear what kind of school knowledge has a relatively long life but exists only in latent form outside the school. The question is under what conditions this latent knowledge can be activated and applied by the pupil in practical action. To fulfil its orienting function, the school curriculum will, therefore, have to spell out how latent competencies and dispositions can be "refreshed" by the pupil himself and be used in practical life.

Chapter 3 touched on this complex issue in discussing recent developments in the methodology of certain specialist school subjects. In sections 3.2.1 and 3.2.2 it has been shown that despite many differences, there is a common core in development trends in these subjects, namely an obvious interest in more comprehensive structuring of learning contents. This interest arises from an increased awareness of the need for subject contents to be educationally relevant. The fundamentals of a discipline should be extracted and the elements which

several disciplines have in common or which link several disciplines together be discovered. The motivation for these suggestions is the hope that they may help to organize school education on the basis of unifying elements and comprehensive structures of knowledge. This approach would make it possible to provide the pupils with didactically meaningful structures of knowledge and general methods of seeking knowledge. Such structures and methods can be retained over a longer period and can, therefore, be more easily activated on future occasions.

Here is one of the points where lifelong learning could come in. If it is possible to enhance the capacity for retention in this manner, above all if meaningful learning can be achieved, this would be an important basis for anchoring lifelong learning in the school. The pupil would be better able to seek knowledge without the aid of the school if he had at his disposal suitable and convincing comprehensive patterns of thinking and understanding with the aid of which he could explain and master unaccustomed situations and phenomena.

One of the problems in devising a curriculum for this purpose is how to find a didactically justified common denominator for knowledge systems and the structures of practical life contexts to which the acquired school knowledge is relevant.

> "We need ... a revision of our conventional school subjects from the point of view of whether, and to what extent, they adequately represent the reality of the young person's life. In this context it is necessary to define the relationship of every learning area or subject to the *relevant science or sciences*, or to those fields of artistic activity or practical life to which the pedagogy concerned relates." (Klafki, 1963, p.124 f).

5.3 Subsidiary function

The term *subsidiary function* signifies the indirect contribution of a curriculum to the preparation of the pupil for lifelong learning (see Chapter 1, section 1.4), i.e. those attributes of a school curriculum that are useful for such preparation without having been specifically designed for the purpose. There may, for instance, be teaching styles which are especially suitable for guiding the pupil towards self-directed learning. The section "A new emphasis on individual learning experiences" in Chapter 3 is concerned with this problem.

Perhaps the meaning of subsidiary function may best be explained by the question as to which instructional elements or themes are, so to speak, in line with lifelong learning. Expressed in more general terms: which structural features of a (specialized) curriculum converge with the idea of lifelong learning, or implement it? The search for such elements or features should cover all school subjects or learning areas. Once they heve been identified, it will be possible to define their specific contribution to lifelong learning and perhaps to increase it. To take a random example, the following questions are intended to illustrate in which domains subsidiary functions of the school curriculum in regard to lifelong learning may be found:

a) What learning occasions helpful to the expansion of the pupil's identity are provided by the curriculum for chemistry or music in Grade 9? Which of these learning occasions are especially suitable for this purpose?

b) Which didactic or methodological aids contained in the above-mentioned curriculum will promote the pupil's self-directed activity and active search for information? In what way are these aids incorporated in classroom instruction or in out-of-school learning situations provided for in the curriculum? How far can the teaching methods designed to promote an active search for information be expected to prepare the pupil for self-organized continued learning in future life contexts?

c) In what way does the chemistry or music curriculum promote sub-cultural experiences and conceptions related to the teaching subjects - even in cases where this relationship is not immediately apparent?

d) Which components and didactic principles of the school curriculum are capable of motivating the pupil to participate in tasks and decision-making in and out of school as a result of, and during, learning processes organized by the school?

In order to make it quite clear why all school subjects should be included in such inquiries, the following interdisciplinary aim is given as an example of the type of competence that will be required in differing situations in future continued learning.

A relatively large number of curriculum researchers advocate a model of instruction based on the conviction that pupils should as far as possible acquire knowledge through inquiry or other forms of self-activity and self-organized (continued) learning. Stimulating an active search for ambiguities in allegedly fool-proof material is an important task. Very often it can only be solved by letting the pupil experiment on his own, carry out independent inquiries and plan the necessary stages of work together with his classmates. Such pedagogical principles actually apply to all school subjects. By way of analogy to such principles, models of instruction could be designed which confront the pupil with unaccustomed situations thus giving him opportunities for learning how to cope actively and critically with new situations.

Part of this capacity is a basic critical attitude toward apparently conclusive ideas and knowledge. This critical attitude should be built up in various school subjects or learning areas. Insights, knowledge, confirmed theories are not eternally valid. Proof of this statement can be found not only in the sciences themselves, but also in a variety of life situations. Attention should be directed to this fact. This also means enabling the pupil to find his own paths to knowledge and to seek his own solutions to problems.

The preconditions for developing the ability to deal actively and critically with new life situations are today distributed very unequally because stimuli and opportunities for learning vary considerably in differing population groups. A study sponsored by the European Cultural Foundation in Amsterdam points out that contemporary educational structures favour privileged groups in society. In future, the accent should therefore be on *disadvantaged groups* "which are in greater need of educational provision than those groups whose requirements are normally met by the existing school systems" (Bengtsson et al., 1975, p.141). The implication is that powerless groups in particular should be rendered capable of self-determination and competent action.

Pupils should be consciously and reflectively oriented towards both the world that can be experienced and the world that cannot be "grasped" directly. Reflective and conscious world orientation means education in critical awareness of one's own social situation, and in creativity and ability to act in this situation. This form of societal and political awareness of the individual in every group has been described

by Freire (1971) as "conscientizaceo". "'Learning to learn' is no longer a cliché for adaptation to reality as defined by the dominant groups, but a dynamic process of 'learning to act' in order to change reality" (Bengtsson et al., 1975, p.143).

Subject curricula can also perform subsidiary functions contributing to an intensification of interpersonal relationship. Human relationships will play a larger role in a system of lifelong learning. Curriculum research has produced some approaches emphasizing improvement of interpersonal relationships and of the quality of interaction. There should be interaction across social strata and across ethnic or sub-cultural groups. These approaches offer an opportunity for democratizing school, provided such many-sided learning opportunities oriented toward common learning are expanded and the curriculum is adapted accordingly.

5.4 Some final remarks

The present study might convey the impression that the curriculum has assumed a key role in the educational process of children and young people; that the author regards the curiculum as the sole decisive instrument for more effective implementation of the concept of lifelong learning. This is not the case. In reality, the influence of curricula on the educational process has long been reduced by other factors, such as television, peer groups, popular literature, the press, parents, discotheques, etc. Tanner and Tanner (1975) report on a study which, though relating to universities, shows that informal student activities and social interaction exert at least as much influence on student life as does formal teaching and the prescribed course of study:

> "A large-scale longitudinal study at a major state university revealed that certain significant learning outcomes (becoming more open-minded and receptive of people of different races, creeds, and religions; becoming more aware of their own life goals; becoming more confident in their ability to deal with new problems; and becoming more realistic in outlook toward the future) were more powerfully associated with extra-class experiences, especially peer group contacts through on-campus living, than with the influence of formal courses and faculty". (p.23, with reference to Feldman and Newcomb, 1969).

In future, additional studies should be undertaken on what the school curriculum can, or could, actually achieve with regard to lifelong learning in comparison with out-of-school institutions and media. And the reasons should be given why the school can do this *better* than other institutions.

This will be successful only when its limitations are also kept in mind. General education, says Hentig (1978), includes much that simply cannot be acquired in school, but can at best be adumbrated, made conscious, prepared:

> "Experience of productive, life-sustaining, remunerative but also hard, constant, dependent work, the serious choice of occupation or of a life partner, responsibility, power and power struggle in politics, ... All this also occurs in school teaching. But, it will be effective only if it can be experienced outside the school; if the pupils can learn alongside and after school, and if this learning is equally respected. In other words: There is education in work and in politics and in celebrating a festival."

An aggravating factor concerning implementation issues is probably the fact that the proposal to start lifelong education in the school does not originate from the school itself. Specialized methodologists, teachers, school heads or supervisors are not the primary initiators of attempts to open the school to elements of lifelong learning, though a few of them are already supporting this approach.

Furthermore, it will be necessary to identify more precisely the conditions under which the "lifelong learning in the school" model can be introduced into various educational systems. The aims and principles of lifelong learning will have to be rediscussed in full knowledge of the limitation of their feasibility.

Such research activities might, for instance, try to discover why no satisfactory solution has yet been found for adapting self-directed learning as an interdisciplinary educational task. One might also investigate the difficulties that may arise from the fundamental contradiction between the idealistic and unconstrained reflectiveness of learning in school and the constraints imposed by its adaptation to out-of-school life situations. For example, a pupil may be irritated if he

chooses an occupation in the expectation that he will be able to work with relative autonomy, only to discover that in practice this occupation leaves but little room for unconstrained learning. He ought to have learnt in school to cope with working conditions and situations which do not correspond to the principle of open, individual-related learning, without, however, abandoning his claim to self-determination at his place of work or in out-of-school life situations. Ability to learn independently according to one's own needs also implies the capacity to recognize, and if necessary to transform, those structures of the learning environment that conflict with this principle.

This thought has also been formulated by Wilson. A chance to realize lifelong learning in the school, he says, exists only if concrete scope for such realization, or concrete starting points, are sought and utilized in the school. In view of the trend to overplanning and overburdening with knowledge in the school, it is, however, also important to pay attention to "planning what not to plan" (Wilson, 1977, p.131).

Another difficulty is that any revision of traditional school subjects is usually based on current ideas on subject pedagogy or on recent practical experiences in the classroom. Consequently, it cannot be expected that the school subjects will automatically assimilate the goals of lifelong learning. Where school education consists essentially of instruction in individual subjects, as is the case in many countries, it is advisable to consider in good time if and how the principle of lifelong learning can be implemented in the context of specialized teaching methodologies - provided the impulses for lifelong learning are largely conducive to subject learning. Conversely, the development of school subjects and their methodologies should be carefully studied in order to obtain information on the position from which an implementation of lifelong learning principles in relation to individual school subjects could start.

Among other considerations, the fact that "good" educational programmes do not in themselves bear an indication of their feasibility, suggests that curriculum renewal should be conceived of as a longterm process of reaching agreement on innovation aims, their practical implementation and revision, and hence as a process of continuous, interactive exchange of opinions and experiences. This applies particularly to the idea of lifelong learning. Teachers, administrators, heads of

schools as well as the general public, the pupils and parents must have the opportunity of thinking about this idea, of reconstructing it and evaluating it on the basis of their own experiences. They must be challenged to internalize it, to visualize its foreseeable consequences including those which concern the mode of instruction, the organization of the timetable, the existence of established school subjects. In short: a well-founded idea can succeeed only if it is acceptable and can be integrated into the frame of mind of those who will have to live with it. Considering the idea in all its aspects, concretizing it, rejecting some of its elements and substituting new ones - all this needs time. Many networks of interaction are required to secure for lifelong learning its rightful place as a paramount task of school education.

The above-mentioned aspects of implementation make one thing clear: a concept of lifelong learning, however well thought out and justified, will not win the day simply because it seems to be good. It must be convincing. And to become convincing, not only the schools, but also the educational authorities, teachers' associations and communities, the public at large and, still more important, parents and pupils must be adequately informed about the essentials of the new concept. Only then will they seriously reflect upon lifelong education, and be motivated to support the idea and participate in its implementation within the scope of their own powers and competencies.

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